

Admissibility of Neuropsychological Evidence in New Hampshire

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I. INTRODUCTION

Neuropsychologists are often called upon in a clinical setting to identify specific areas of cognitive dysfunction in patients that sustain traumatic injuries to the brain. These clinicians assess brain damage based on the results of a battery of neuropsychological tests. The most common tests used for evaluation are memory tests, intelligence tests, and personality tests. The test results are then measured against a "norm" of what nonbrain-injured people score.

Neuropsychologists are often called as expert witnesses in personal injury actions to testify concerning the cause and extent of cognitive impairment as a result of a traumatic injury to the brain. The admissibility of such testimony is often challenged as being scientifically unreliable under evidentiary standards established by the United States Supreme Court. Furthermore, neuropsychologists are often challenged on their qualifications to render an opinion as to the cause of organic brain damage. This article reviews a recent New Hampshire trial court decision precluding a neuropsychologist from testifying based upon the scientific unreliability of a battery of tests and analyzes decisions from other jurisdictions on the extent to which neuropsychologists should be permitted to testify in brain injury cases in New Hampshire.

II. RELIABILITY OF NEUROPSYCHOLOGICAL TESTING

The question of whether a plaintiff's neuropsychologist's method met the scientific reliability requirement for the purposes of admissibility in evidence was addressed in *Baxter v. Temple*.¹ In *Baxter* the plaintiff alleged that she sustained permanent cognitive impairment as a result of exposure to lead paint as a result

of the defendants' failure to maintain a habitable apartment and by failing to warn the plaintiff's family of the presence of lead paint in their apartment. The plaintiff retained a clinical neuropsychologist to perform two neuropsychological test batteries to determine whether she was suffering from brain damage as a result of lead paint toxicity.² Dr. Bruno-Golden found that the minor plaintiff demonstrated a 20-point decline in her full scale I.Q. between the first test, administered in 2002, and the second test, given in 2004.

Before trial, an evidentiary hearing was held on the defendant's motion to exclude Dr. Bruno-Golden's conclusions as being scientifically unreliable. At the hearing, Dr. Bruno-Golden testified that she employed a neuropsychological testing technique called the Boston Process Approach. She referred to the Boston Process Approach as "hypothesis testing." Dr. Bruno-Golden explained that in hypothesis testing of a patient, intelligence tests are initially administered, followed by subsequent tests based upon the patient's performance. A second expert, Dr. Sheehan, testified that the Boston Process Approach is a "flexible battery approach" in which the clinician utilizes a collection of standardized neuropsychological tests to assess various brain functions.

The defendant challenged the reliability of the Boston Process Approach methodology and the specific battery of tests chosen by Dr. Bruno-Golden as being scientifically unreliable. The defendant argued that the specific battery of tests had not been subjected to peer review and publication, had no known rate of error, and was not generally accepted in the scientific literature. The plaintiff contended that the individual subtests in the battery had all been tested individually and were generally accepted in the field of neuropsychology. Dr. Bruno-Golden conceded, however, that the particular battery of tests had never been tested, and the results of the Boston Process Approach could not be independently verified because the methodology (subjective selection of sub-tests) varies between neuropsychologists. Dr. Bruno-Golden further tes-

tified at the pre-trial evidentiary hearing that she could not recall whether she had ever administered the same battery of tests on any of the thousands of patients she had previously evaluated.

Following a six-day evidentiary hearing, the Superior Court precluded Dr. Bruno-Golden from testifying. The trial court found that the proffered testimony did not meet the requirements for the admission of expert testimony set forth by the United States Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,³ and adopted by the New Hampshire Supreme Court in *Baker Valley Lumber, Inc. v. Ingersoll Rand Co.*⁴ In excluding the evidence, the court made specific findings of fact on each of the relevant Daubert/Baker considerations. Specifically, it ruled that the absence of peer review testing of the specific battery of subtests, the lack of a known potential error rate in the testing methodology, and the failure to demonstrate a general acceptance of this methodology required exclusion of the evidence.

In addition to the shortcomings of the subject battery, Dr. Bruno-Golden's failure to administer the tests in strict compliance with the written test administration protocols further compromised the test results. Specifically, she permitted the plaintiff additional time to complete some sections of the test. Dr. Bruno-Golden acknowledged that American Psychiatric Association's *Standards for Educational and Psychological Testing* requires compliance with test administration procedures, and that the failure to do so may have significant effects on the validity and reliability of the test scores.⁵ In addition to the failure to impose the strict time restrictions, Dr. Bruno-Golden was only able to identify two subtests from each test session in which she complied with the letter of the administration manual. The court found that this evidence "overwhelmingly" showed that the methodology employed was unreliable.⁶

Contrary to the practice of many neuropsychologists, the *Standards for Educational and Psychological Testing* authored by the American Psychological Association, demand that the psychologist be able to cite specific literature supporting a particular battery's validity. If no such literature exists, the psychologist must report their conclusions as "hypotheses for future verification rather than probabilistic statements that imply some known validity."⁷

The subjective selection of subtests is consistent with the practice of many forensic neuropsychologists who do not administer batteries recognized in the standards. In practice, neuropsychologists will often concede that there are no standard batteries of neuropsychological tests validated by peer review. Rather, neuropsychologists choose from a large menu of available subtests. Many neuropsychologists use a different battery of tests each time they conduct an evaluation, affirmatively demonstrating the lack of standardized testing.

Psychologists often contend, like the psychologist that was excluded in *Baxter*, that the subjective selection of tests and enforcement of test protocols is an acceptable exercise of the psychologist's professional judgment. While the use of flexible batteries in a clinical setting may be an appropriate method of searching for a diagnosis, expert opinions in courts are about science, not advocacy.⁸ The failure to administer a standard battery in strict compliance with the test protocols undercuts the reliability of the test results. Because the individual's performance is measured against the statistically normal person that has taken a standardized test that has been precisely administered, the alteration of tests make it impossible to compare the subject to the "normal" person. The exclusion of neuropsychological evidence based upon the failure to administer an accepted test battery is consistent with other courts that have reached similar results.⁹ It should also be noted that the New Hampshire legislature has recognized the importance of standardized testing in the context of psychological screening tests for prospective police officers, state corrections officers and probation-parole officers.¹⁰

The analysis of whether a diagnosis is scientifically reliable is complicated by the absence of accepted diagnostic criteria for post-concussional disorder. In cases involving a traumatic injury to the head, neuropsychologists often diagnose personal injury plaintiffs with post-traumatic stress disorder and/or post-concussional disorder. While post-traumatic stress disorder is a recognized diagnosis,¹¹ post-concussional disorder has not been included by the American Psychiatric Association as a recognized mental disorder.¹² Rather, it is included in the Appendix to the DSM-IV Manual as a proposed category with "tentative" criteria for future study.

While not officially recognized as a formal diagnosis, the proposed diagnosis of post-concussional disorder would require two of the following: (1) a period of unconsciousness lasting at least five minutes; (2) a period of post-traumatic amnesia lasting at least 12 hours after the traumatic injury, or (3) a new onset of seizures or marked worsening of a pre-existing seizure disorder within six months after the injury. The DSM-IV Manual notes, however, that there is "insufficient evidence to establish a definite threshold for the severity of the closed head injury."¹³ Notwithstanding the absence of a formal diagnosis, post-concussional disorder is commonly diagnosed by neuropsychologists in plaintiffs whose neuropsychological testing reveals impairment in memory, attention, or speed of information processing following a traumatic injury to the head. In such cases, neuropsychologists often characterize headaches, confusion, and loss of memory as symptoms of post-concussional disorder. Recent research has revealed that the best predictor of post-concussional symptoms is the degree of depression rather than the extent of head trauma,¹⁴ thus confounding the

medical literature with respect to the diagnosis.

III. QUALIFICATIONS TO RENDER AN OPINION ON CAUSATION

Whether a neuropsychologist's battery of testing reaches the reliability threshold for admission in evidence does not resolve the related issue of whether a neuropsychologist should be permitted to testify as to the cause of the cognitive impairment diagnosed in the testing. The trial court has broad discretion to permit an expert witness to offer expert testimony.¹⁵ Pursuant to New Hampshire Rule of Evidence 702, which is identical to the cognate federal rule, the trial court may permit a witness to provide opinion testimony if the expert is qualified by "knowledge, skill, experience, training or education."¹⁶ The Reporter's Notes to the rule observe that "[o]pinion evidence in New Hampshire . . . has a broader scope than in other jurisdictions.¹⁷ Trial courts are vested with broad discretion to determine whether a witness is qualified to render expert opinion testimony.¹⁸ An individual witness's qualifications must be determined on a case-by-case basis, not by application of a *per se* rule of exclusion or inclusion.¹⁹ "While the trial court may rule that a certain subject of inquiry requires that a member of a given profession be called, usually a specialist in a particular branch within a profession is not required."²⁰ A widely-recognized corollary of this rule is that "[t]he party offering a witness as an expert has the burden of establishing the witness' qualifications."²¹

New Hampshire courts have generally recognized that psychologists are qualified to testify concerning a person's present level of cognitive functioning.²² However, the New Hampshire Supreme Court has not addressed whether a neuropsychologist may render an opinion on the *cause* of organic brain injury.²³ The Court has issued other rulings that are instructive. In *Figlioli v. R.J. Moreau Inc.*,²⁴ the Court ruled that a vascular surgeon was not qualified to render an opinion concerning alleged neurological impairment based on the American Medical Association Guidelines. The surgeon was not a neurologist and claimed no expertise in the field of neurology, but nevertheless testified at trial that the plaintiff had a fourteen percent neurological impairment. The Supreme Court noted that although a medical degree does not automatically qualify a witness to give an opinion on every conceivable medical question, neither does the lack of specialization in a particular medical field automatically disqualify a doctor from testifying as an expert in that field.²⁵ Despite his medical degree and training as a vascular surgeon, the Court determined that the trial court abused its discretion in admitting the testimony because the surgeon had no specific neurological training or experience, and had not frequently worked with patients who had neurological injuries.²⁶ In ruling that the surgeon

was not qualified to render an opinion as to the neurological impairment, the Court distinguished other decisions in which it permitted doctors to testify beyond their specific training when they had adequate experience in the field in question.²⁷

On the surface, it would appear that neuropsychologists are experienced in identifying and treating cognitive deficits secondary to traumatic brain injuries. Neuropsychologists often administer testing at the direction of neurologists to identify specific areas of cognitive impairment. However, "neuropsychology" is a term used by psychologists to self-designate themselves as having expertise in diagnosing brain injuries. In fact, such psychologists have no special license or degree in neuropsychology.²⁸ Importantly, neuropsychologists are not medical doctors, cannot admit patients to the hospital, and cannot order diagnostic testing of the brain such as MRI's, CT scans, or EEG's. In most states, including New Hampshire, psychologists are not licensed to assess the need for medications, prescribe medicine, or otherwise practice medicine.²⁹ The statute provides: A psychologist is merely licensed to diagnose and treat the "psychological and social aspects of physical illness, accident, injury or disability."³⁰ The lack of medical expertise has been implicitly recognized by the New Hampshire legislature, which has authorized psychologists to conduct some, but not all, types of examinations to determine the mental status of individuals in connection with a variety of court proceedings.³¹

The question of a neuropsychologist's qualifications to testify as to the proximate cause of a brain injury is particularly problematic in civil cases with alternative *medical* explanations for a patient's symptoms. The concept of proximate cause includes both the factual cause and the legal cause of injury.³² Conduct is the factual cause of an injury if the injury would not have occurred without that conduct.³³ The plaintiff must produce evidence sufficient to warrant a reasonable juror's conclusion that the causal link between the negligence and the injury probably existed.³⁴

Neuropsychologists will generally concede that they have no expertise concerning the variety of potential *medical* causes of the claimant's symptoms. While neuropsychologists often describe symptoms such as weakness in concentration, memory loss, susceptibility to distraction and impaired speed of information processing as deficits identified through neuropsychological testing, the neuropsychologist is not trained in the differential diagnoses of these symptoms. A differential diagnosis is the process by which physicians determine which of two or more diseases with similar symptoms is the one from which the patient is suffering. This is done by systematically comparing and contrasting clinical findings,³⁵ and is necessary to reach a reliable conclusion.³⁶ As stated by the Ninth Circuit Court of Appeals in *Claar v. Burlington*

Coming to a firm conclusion first and then doing research to support it is the antithesis of the [scientific method]. Certainly, scientists may form an initial hypothesis. However, scientists whose conviction about the ultimate conclusion of their research is so firm that they are willing to aver under oath that it is correct prior to performing the necessary validating tests could properly be viewed by the district court as lacking the objectivity that is the hallmark of the scientific method.

In cases where a plausible medical cause of the plaintiff's symptoms is advanced, a neuropsychologist may be unable to rule out a cause and, therefore, is precluded from giving an opinion on causation with a reasonable degree of certainty.³⁸ Specifically, the neuropsychologist may not be qualified to rule out other medical causes, such as hypertension, age-related dementia, impaired cerebral circulation, and sideeffects of medication as the cause of the identical symptoms. Therefore, the neuropsychologist may be precluded from testifying as to the cause of the deficit as well as the future prognosis. *The Standards for Educational and Psychological Testing* adopted by the American Psychiatric Association provide further support for this proposition because the standards clearly require psychologists to confine their testing to their areas of competence, and to be able to understand the test scores in the context of the individual's medical background.³⁹

Jurisdictions are split as to whether neuropsychologists may testify as to the cause of a plaintiff's alleged cognitive impairment. Neuropsychologists are generally permitted to testify concerning the tests administered, the test results, and an interpretation of the results used to reach the conclusion.⁴⁰ Whether the neuropsychologist may testify on the issue of causation often turns on the state's statute concerning the scope of a psychologist's practice, and whether an alternative medical cause of symptoms is advanced by the defendant. Some courts have relied heavily upon their respective statutory definitions of the practice of psychology as a basis for restricting such testimony.⁴¹

A majority of jurisdictions appear to have permitted neuropsychologists to opine on the physical cause of organic brain injury.⁴² Other jurisdictions have precluded neuropsychologists from testifying on medical causation.⁴³ The jurisdictions which do not allow a psychologist or neuropsychologist to testify regarding the medical causation of a plaintiff's condition justify their limitations on the premise that psychologists are not medical doctors trained in the physiological aspects of the human body.⁴⁴ A few courts that would have rejected psychological testimony supporting a brain injury have allowed it when it is presented in conjunction with medical testimony from a physician.⁴⁵

The United States Court of Appeals for the First Circuit has allowed a neuropsychologist to testify regarding causation.⁴⁶ In *Trull*, a plaintiff allegedly sustained a depressed skull fracture in a motor vehicle accident causing blood to form inside the brain which had to be drained away by a craniotomy procedure. The defendant maintained that the plaintiff did not suffer a brain injury resulting in cognitive deficits in the accident. The neuropsychologist and clinical psychologist testified that the passenger's head trauma exacerbated his pre-existing mental, physical and psychological problems.⁴⁷ The case is unclear as to whether or not the psychologist's qualifications were challenged. To date, the issue has not been presented to the New Hampshire Supreme Court.

IV. CONCLUSION

The extent to which a neuropsychologist should be permitted to testify requires a thorough examination of the facts of a particular case and that methods employed by the proposed expert. The test procedure must be scrutinized to ensure that the conclusions are scientifically reliable in accordance with the rulings of the New Hampshire Supreme Court. Furthermore, potential medical causes that would explain a plaintiff's cognitive dysfunction must be considered to determine whether a physician is needed to testify on medical causation. In the light of the myriad issues around the admissibility of neuropsychological evidence and the factually intensive nature of each case, it is unlikely that the questions raised by this article will be resolved with a bright-line test even when they are presented to the Supreme Court. Rather, a case-by-case approach will be necessary to fairly evaluate the merits of each case.

ENDNOTES

1. Merrimack Superior Court, C.A. No.: 2001-C-0567.
2. The 2002 battery consisted of approximately twenty six different tests. The 2004 battery was substantially the same as the 2002 battery. The 2004 battery consisted of approximately twenty three different tests, several of which were augmented by sub-tests. The critical tests administered in 2002 were (1) the Wechsler Intelligence Scale for Children III ("WISC III"); (2) the Rey Osterrieth Complex Figure Test ("Rey O"); and (3) the Connor's Continuous Performance Test ("CCPT"). The critical tests Dr. Bruno-Golden administered in 2004, were: (1) the Wechsler Intelligence Scale for Children IV ("WISC IV"); (2) the WISC III Process Instrument Digit Span Backward Test; (3) the Wide Range Achievement Test Third Ed. Reading Decoding Subtest ("WRAT-3"); (4) the Rey O; (4) the Children's Memory Scale; and (6) The CCPT.
3. In *Daubert*, the United States Supreme Court identified the following four factors which bear on the inquiry of scientific validity and are designed to aid the courts in evaluating whether a particular scientific theory, study or opinion is reliable: 1) whether the theory is generally accepted in the scientific community; 2) whether the theory in question can be and has been empirically tested; 3) whether the theory in question has been subjected to peer review publication; and 4) the theory's known or potential error rate and whether that rate is acceptable. *Daubert*, 113 S. Ct. at 279698.
4. In *Baker Valley Lumber, Inc.*, the New Hampshire Supreme Court adopted and applies the *Daubert* standard to New Hampshire Rule of Evidence 702 analysis to determine the admissibility of expert testimony. The New Hampshire Legislature codified the *Daubert* standard in RSA 516:29-a, II, which provides:

