

DISTRICT COURT, WELD COUNTY, COLORADO 901 9 th Avenue Greeley, CO 80631	
Plaintiff: RICHARD SCOTT MEYER Defendants: RONALD G. MAUPIN, individually and MAUPIN, INC., a Colorado Corporation	Δ COURT USE ONLY Δ
Attorney: Name: Larry D. Lee, Esquire Address: 1790 38 th Street Suite 205 Boulder, CO 80301 Telephone: 303-499-1111 Facsimile: Declined pursuant to C.R.C.P. 5(b) E-mail: larrydlee@leelawpc.com Atty Reg#: 12846	Case Number: 2004CV211 Div.: Ctrm.:
RESPONSE TO DEFENDANTS' MOTION <i>IN LIMINE</i> TO EXCLUDE SPECT SCANS AND RELATED TESTIMONY AND EVIDENCE FROM TRIAL	

Plaintiff, Richard Scott Meyer, through counsel, responds to Defendants' Motion *in Limine* to Exclude SPECT Scans and Related Testimony and Evidence from Trial and, as grounds therefore, states as follows:

I. SUMMARY OF PLAINTIFF'S RESPONSE

The SPECT Scan involved in this case was for assessment and treatment, not merely for litigation. The SPECT corroborates and is consistent with the three neuropsychological evaluations (given in 2003, 2004 and 2005), as well as the emergency room physician's diagnosis of closed head injury, the speech language evaluation, and the facts of this rear-end collision. Federal and state courts in Colorado have admitted the SPECT and Plaintiff's expert. Literature and the Medical Society support the use of SPECT. Medicare and many insurance companies, as well as the medical community, accept SPECT for traumatic brain injury. Plaintiff requests a hearing at which Plaintiff's expert will use slides, attached hereto as Exhibit 1, to show that he is qualified, the SPECT is admissible, and that in this particular case, the SPECT corroborates and is consistent with the neuropsychologist's diagnosis.

II. ARGUMENT

A. The SPECT Scan involved in this case was for assessment and treatment, not merely for litigation.

The Plaintiff was involved in significant mechanism rearend collision yielding a rollover on February 26, 2001. He was taken by ambulance to Longmont United Hospital where the emergency room physician diagnosed him as having a closed head injury (CHI). He followed up with his family practitioner, who diagnosed post-traumatic stress disorder (PTSD), depression and other injuries. He followed up with a chiropractor, who suspected a brain injury and who referred him to a neuropsychologist. The family practitioner referred to a neurologist who deferred to the neuropsychologist. The Plaintiff completed three all day neuropsychological batteries in three different years (2003, 2004 and 2005), and found mild traumatic brain injury and cognitive dysfunction. See reports of Jan Lemmon, Ph.D. attached as Exhibits 2, 3 and 4. She referred him to an SPECT. (SPECT is single photon emission computed tomography.) The SPECT was completed at Brain Matters, Inc., and was interpreted by S. Gregory Hipskind, M.D., Ph.D. The findings by Dr. Hipskind are consistent with mild traumatic brain injury. The SPECT findings were utilized by treatment providers. MaryAnn Keatley, Ph.D.,¹ speech-language pathologist, found corroboration of her assessment and testing that it was an anterior frontal lobe injury. This part of the brain addresses language. The Plaintiff has experienced some measure of relief in finding that he had a physical malady which explains his circumstances.

¹ Dr. Keatley has 30 years of experience. She was the clinical director of physical medicine and rehabilitation in hospital setting. She has seen thousands of patients with traumatic brain injury. Her education, training and work in hospitals, qualifies her to recognize and diagnosis traumatic brain injury. In this particular case, she saw the Plaintiff on a referral of the neuropsychologist and had him complete two symptom checklists both of which are consistent with mild traumatic brain injury. She saw the SPECT results and found it useful. It confirmed anterior tempolobe injury which relate to language so it was helpful to Dr. Keatley in focusing treatment. Dr. Keatley also thinks that the Plaintiff suffers from depression. She thinks the Plaintiff has remediated his traumatic brain injury a lot but his work now is compensatory because he has a permanent frontal lobe injury; he won't be able to improve in executive functioning; it is not a good prognosis.

B. S. Gregory Hipskind, M.D., Ph.D. is qualified.

S. Gregory Hipskind, M.D., Ph.D. is indisputably qualified in the area of SPECT scans and in using such SPECT scans to assist in diagnosing traumatic brain injuries.² Although Dr. Hipskind and many other neuroradiologists have been using SPECT for numerous years to help diagnosis brain injuries, Defendants have now filed a Motion *in Limine* to Exclude SPECT Scans and related testimony in evidence from trial. The Defendant contends that SPECT scans cannot reliably be used to diagnosis or assess causation for brain injuries, and the admission of SPECT evidence would result in unfair prejudice, confusion of the issues and misleading the jury. SPECT scans and Dr. Hipskind's opinion, however, should be admissible in this matter pursuant to C.R.E. 702 and 703 because they are both relevant and reliable in the scientific community assisting to diagnosis brain injury and have been for years. Further, Dr. Hipskind is a recognized expert in the field. As such, Plaintiff requests this Court to deny Defendants' Motion *in Limine* to Exclude SPECT Scans and Related Testimony in Evidence From Trial.

C. Dr. Hipskind's proposed testimony is both relevant and reliable and should therefore be admissible under C.R.E. Rule 702.

C.R.E. Rule 702 governs the admissibility of expert testimony. The rules provide the following:

If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

The decision of whether to admit expert testimony lies within the sound discretion of the trial court. In borderline questions, it is more appropriate for a judge to admit the

² Dr. Hipskind is a board certified neuroradiologist who, in the past seven years have read and evaluated well over 600 SPECT brain function imaging scans concerning approximately 300 patients. See Curriculum Vitae of Dr. Hipskind attached hereto as Plaintiff's Exhibit 5. He has acquired approximately 1000 hours of training pertaining to SPECT scans at St. Joseph's Hospital in Bellingham, Washington. He has received over 200 hours of training at the Institute of Nuclear Medicine education and obtained certificates of competency and principals of radiation physics, radiopharmaceuticals, medical radiation protection and medical radiation instrumentation, 90% of which dealt with training of SPECT. In addition, in 2003, he was licensed by the Nuclear Regulatory Commission to use SPECT imaging and clinical practice.

evidence than to exclude it from the fact finder because "vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 US 579, 596 (1993). The Colorado Rules of Evidence assign to the trial judge the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand. The trial judge is the "gatekeeper" of expert testimony to ensure that the testimony is both a) relevant and b) reliable. *U.S. v. Havvard*, 117 F.Supp 2d 848(S.D.Ind.2000) The two part test for admissibility of expert testimony rests on relevance and reliability.

D. Dr. Hipskind's testimony is relevant pursuant to C.R.E. 401.

Evidence is relevant for purposes of the Colorado Rules of Evidence, if it has "any tendency to make the existence of any fact that is of consequence to the determination of the action more or less probable than it would be without the evidence." C.R.E. 401.

Here, it is unquestionable that SPECT scans are relevant to this matter. First of all, they were taken of the Plaintiff. Secondly, one of the main purposes in general, and the entire purpose of the use of SPECT scans in this matter, is to contribute to the objective evidence diagnosing a patient with a traumatic brain injury. Pertinent medical literature states, "a variety of radiological and laboratory techniques have been used to diagnose TBI [sic][traumatic brain injury], including x-rays of the skull, computed tomography of the brain, MRI (magnetic resonance imaging), and SPECT (Single Photon Emission Computed Tomography)." ³ SPECT, in particular, is a procedure providing an indirect measure of brain metabolism by measuring cerebral blood flow. Patterns of regional cerebral blood flow generally match the metabolic requirements of the brain, and thus will provide information regarding the functional status of the brain tissue.⁴

³ National Center for Injury Prevention and Control. *Report to Congress on mild traumatic brain injury in United States: Step to Prevent a Serious Public Health Problem*, Atlanta, California: Centers for Disease Control and Prevention; 2003, P.7(**emphasis added**).

⁴ Kant R, Smith-Seemiller L., et al. tc-HMPAO SPECT in persistent post-concussion syndrome after mild head injury: comparison with MRI/CT. *Brain Inj.* 1997 Feb; 11(2), pp. 115-116.

Defendant disputes that Plaintiff has in fact sustained a traumatic brain injury in this matter. Regardless of Defendant's argument, therefore, that SPECT is investigational for purposes of diagnosing brain injuries, it is being used to assist in determining whether the existence of Plaintiff's brain injury is more or less probable, a fact that is in dispute. Through the use of SPECT scans, Dr. Hipskind's reports have played a part in assisting to diagnose Plaintiff's traumatic brain injury. Specifically, Dr. Hipskind has stated as follows:

Impression:

Brain SPECT imaging was performed at baseline and during a concentration task. Significant findings from these studies are as follows:

1. The findings of fixed bilateral anterior temporal lobe areas of hypo-perfusion seen on the isocontour/3D surfaces are most consistent with traumatic brain injury.

2. The finding of diffused decreased patchy cortical activity is consistent with probably toxic/anoxic exposure.

3. The finding of increased activity in the basal ganglia has been associated by some authors with anxiety related disorders.

4. The finding of decreased perfusion in the overall cortical activity and increased symmetrical limbic activity is consistent with a possible mood disorder or depression.

5. The findings of decreased activity in the cerebellum, orbital frontal, prefrontal poles, anterior temporal lobes and medial temporal lobes with test has been associated by several authors with ADHD-like processes. This type of finding is also reported in brain-injured patients experiencing cognitive difficulties.

See, Dr. Hipskind's report dated March 20, 2005, at page 3. This report is attached as Exhibit 6.

Dr. Hipskind's report clearly show that Plaintiff suffered a traumatic brain injury, and indicates a basis for his opinions. Dr. Hipskind's report should be taken together with all of the other information in this case indicating that Plaintiff has sustained a brain injury. The SPECT scans are demonstrated to be highly relevant. Indeed, in this case, Plaintiff makes an offer of proof that the emergency room physician has diagnosed closed head injury; the neuropsychologist has diagnosed mild traumatic brain injury; the

SPECT scan is consistent with traumatic brain injury; the speech language pathologist has found speech language difficulties consistent with mild traumatic brain injury and cognitive dysfunction; the defense neuropsychologist generally agrees with the Plaintiff's neuropsychologist's diagnosis (but disputes causation). See defense neuropsychologist expert Laetitia Thompson, Ph.D.'s report attached as Exhibit 7. When all of this information is taken together, Dr. Hipskind's SPECT scan and testimony based on SPECT scans are highly relevant to establishing that Plaintiff sustained a brain injury in the subject collision.

E. Dr. Hipskind's testimony is likewise reliable and should therefore be admissible as expert testimony.

In order to be admissible, expert testimony must also be reliable. C.R.E. Rule 702. The trial court may consider the *Daubert* factors as a "non-exclusive list of general observations that a trial court may consider." *People v. Shreck*, 22 P.3d 68, 77 (Colo.2001) The particular factors a trial court considers will depend upon the unique circumstances of the expert testimony involved. *Kumho Tire Co., Carmichael*, 526 U.S. 137, 141, 151-152. *Kumho* trial court noted that in other cases, the relevant reliability concern may focus upon personal knowledge or experience alone. *Id.* at 141.

Dr. Hipskind has more than ten years of experience in SPECT training and personal SPECT scan evaluation. He makes clear in his report, and he will make clear in this testimony, that he basis his opinion on nationally standardized criteria as well as literature, training and experience that shows abnormal areas of profusion can occur in discreet patterns which, in Plaintiff's case, were indicative of a brain injury. Furthermore, additional information on Plaintiff's medical history was not provided to Dr. Hipskind in order to obtain a completely unbiased objective opinion based on the SPECT scan results. He states in his report at page 4: "The patient's clinical information was not reviewed at the time of the scan's reading." As a result, the SPECT test results clearly indicate a brain injury which is also confirmed by the evidence in this case including, but not limited to the emergency room records, the neuropsychological testing, the type of accident which occurred, and the confirmation by the defense neuropsychologist.

There is an abundance of articles identifying the use of SPECT scans as useful tool in diagnosing injury.⁵ Attached as Exhibit 8 are various excerpts compiled indicating that SPECT scans have been recognized by the scientific community as a diagnostic tool for determining whether a patient has a brain injury. The following are various quotes from several peer reviewed articles on the subject:

SPECT brain perfusion imaging (BPI) is highly sensitive for detecting regional cerebral perfusion flow disturbances in patients with traumatic brain injury. . . SPECT brain perfusion imaging has detected more lesions after major head injuries than x-ray, CT or MRI. . . In mild head injuries, SPECT brain perfusion imaging is more sensitive than other morphologic modalities.

...

SPECT [sic] has shown perfusion abnormalities in traumatic brain injury despite normal morphology and results are considered to have prognostic value.

In *Searcy v. Hamburger*, Civil Action # 02-Z-2260 (MJW), a case filed in the United States District Court for the District of Colorado before the Honorable Zita Weinshienk, Dr. Hipskind stated the following:

Regarding the validity of brain SPECT imaging in traumatic brain injury, I note that the *Report to Congress on Mild Traumatic Brain Injury in the United States: Steps to Prevent a Serious Public Health Problem*. (citation omitted), refers to Dr. Bigler, among others, as describing SPECT as diagnostic in traumatic brain injury ("TBI"). Further, in his chapter entitled "Neuroimaging in Forensic Neuropsychology" which appears in the *Handbook of Forensic Neuropsychology* (2003), at pages 197-199, regarding the role of neuroSPECT in TBI he states: "[T]he more revealing findings come with single photon emission computed tomography (SPECT), which

⁵ In light of the Colorado Rules of Civil Procedure Committee comments recommendation that responses be limited to ten pages and that only concise exhibits be attached, rather than attaching all mentioned articles, Plaintiff has attached various research excerpts from many articles confirming the use of SPECT scans as a diagnostic tool for accessing brain injury. See Exhibit 8. Plaintiff will certainly be able to produce such articles to the Court at any Shreck hearing. See Summary of Articles attached as Exhibit 9.

demonstrated lack of perfusion in regions that exceed the boundaries defined by the signal abnormalities in the temporal area... Although structural imaging with MRI in this region did indicate some structural damage, SPECT imaging clearly demonstrated a large left frontal defect (see Figure 7.2). What is important in viewing this defect is that it shows considerable functional impairment in what otherwise looks to be normal-appearing tissue. Such frontal defects are expected to result in changes in executive and personality function. Such problems were reported and observed in this patient, but were difficult to actually demonstrate with neuropsychological technique, because of very high premorbid functioning.

The Defendants reference a 1996 publication: "Assessment of Brain SPECT". However, the defense fails to advise the Court of the significant number of studies which have taken place since 1996. Dr. Hipskind will testify as follows:

Since 1996, there have been over 100 additional peer-reviewed scientific studies concerning SPECT in mild-to-moderate TBI using HMPAO and more advanced multiple-detector gamma cameras. In strong recognition of the advances made over the past decade, the European Association of Nuclear Medicine, citing both the TTASAAN and SNMBIC reports, considers the evaluation of TBI as a "common indication" for the utilization of brain SPECT imaging.

Thus, SPECT scans have clearly been used and are considered a reliable source in the scientific community to diagnose brain injury or at a minimum, to offer evidence consistent with the diagnosis of brain injuries, and should be admissible for such purpose.

F. Federal and State law further support the admissibility of SPECT scans as reliable scientific evidence.

Although there is limited case law discussing the admissibility of SPECT scans, there have been cases admitting SPECT scans into evidence. Plaintiff has attached as Exhibit 10, a summary of relevant case law on the admissibility of SPECT scans. The summary of case law cited stands for the proposition that SPECT scans are admissible as having received general acceptance in the scientific community for determining changes

in the brain. See, "Order" in *Searcy v. Hamburger* dated 2 June, 2005 denying the Defendant's Motion to Exclude Plaintiff's Expert and SPECT scan. Order is attached as Exhibit 11. See, *Campbell v. TR Transportation*, District Court, Adams County, State of Colorado, Civil Action #00CV373, hearing transcript attached as Exhibit 12.

G. Plaintiff's Offer of Proof

Plaintiff requests a hearing. At that hearing, Plaintiff will offer S. Gregory Hipskind, M.D., Ph.D. to outline, with the use of a PowerPoint presentation, what is represented above and the following:

1. Dr. Hipskind and Brain Matters, Inc. use the latest in high resolution SPECT camera;
2. How the SPECT functions and how it differs from an MRI or a CT scan;
3. A showing of findings on an MRI, a CT scan and a SPECT (related to the Plaintiff);
4. Excerpts from the medical communities' acceptance of brain SPECT imaging and TBI. The European Association of Nuclear Medicine, the American College of Radiology, and the Society of Nuclear Medicine all accept SPECT.
5. Medicare contract guidelines (§13.5.1) indicating the SPECT is "safe and effective; not experimental or investigational . . ."
6. That numerous third party payers accept SPECTs for TBI including the following:

- a. Medicare
- b. United Healthcare
- c. Humana
- d. CHUBB
- e. GEICO
- f. Farmers
- g. Zurich
- h. Amica
- i. Blue Cross
- j. Connecticut General
- k. State Farm
- l. Shelter
- m. Fortis
- n. Trustmark
- o. Aetna

7. Worker's compensation insurers in various states reimburse SPECTs for TBI.
8. How the brain SPECT examination process works.
9. How accurate the brain SPECT is. (Dr. Hipskind will explain a study about traumatic brain injury issued by Jacobs in 1996 discussing 136 patients and SPECT sensitivity. This sensitivity at twelve months was 100 percent.
10. SPECT reliability in predicting outcome (Dr. Hipskind will also address specificity which was 100 percent at 12 months in the Jacobs study).
11. What researchers conclude about brain SPECT application and traumatic brain injury. Dr. Hipskind will rely not only Jacobs (1996) but also Bavetta (1994).
12. Dr. Hipskind will describe what the appointments for a SPECT scan consist of.
13. Dr. Hipskind will compare the Meyer SPECT scan results with the SPECT scan of a normal sample.
14. Dr. Hipskind will discuss the most common TBI-SPECT findings.
15. Dr. Hipskind will show examples of frontal lobe problems for Mr. Meyer.
16. Dr. Hipskind will show cognitive/executive dysfunction on a SPECT scan and explains how it is corroborated by Mr. Meyer's SPECT scans.

In addition, Dr. Hipskind will discuss the Medicare Program Integrity manual attached as Exhibit 13 and the Society of Nuclear Medicine Reimbursement Schedule attached as Exhibit 14. Further, he will testify to a list of articles regarding the use of SPECT scans, and that list is attached as Exhibit 15. Finally, he will discuss the following articles: SPECT admissibility Issue: Specificity; ACR Practice Guideline for the Performance of Single-Photon Emission Computed Tomography (SPECT) Brain Perfusion Imaging (ACR Practice Guideline); Society of Nuclear Medicine Procedure Guideline for Brain Perfusion Single Photon Emission Computed Tomography (SPECT) Using Tc-99m Radiopharmaceuticals (SNM Procedure Guidelines Manual June 2002) page 113-118; European Association of Nuclear Medicine Procedure Guidelines for Brain Perfusion SPET using ^{99m}Tc-labelled Radiopharmaceuticals; One-Year Follow-up of Technetium-99m-HMPAO SPECT in Mild Head Injury (The Journal of Nuclear Medicine, Vol.37, No. 10, October 1996); SPECT Brain Perfusion Findings in Mild or Moderate Traumatic Brain Injury; and Research Excerpts on Brain SPECT Function Imaging of Traumatic Brain Injuries and Related Neuropsychiatric Disorders.

WHEREFORE, Plaintiff respectfully requests that this Honorable Court deny Defendants' Motion *in Limine* to Exclude SPECT Scans and Related Testimony and Evidence of Trial. In the alternative, Plaintiff requests a Shreck hearing to determine the admissibility of Dr. Hipskind's testimony and the admissibility of Plaintiff's SPECT scans, and such other and further relief as to this Court seems just and proper.

DATED this 12th day of July, 2005.

Respectfully submitted,

LARRY D. LEE, P.C.

BY: /s/ Signature on File
Larry D. Lee

