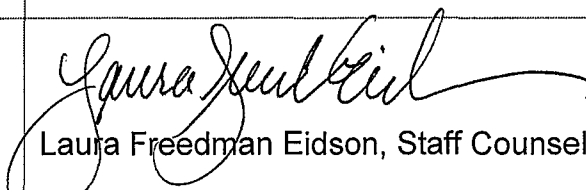




**ATTORNEY-CLIENT PRIVILEGED  
MEMORANDUM**

<b>DATE</b>	July 19, 2010
<b>TO</b>	Steve Hartzell, Executive Officer Physical Therapy Board of California
<b>FROM</b>	 Laura Freedman Eidson, Staff Counsel
<b>SUBJECT</b>	<b>Physical Therapist Scope of Practice – Electroneuromyographical Examinations</b>

ISSUE/QUESTION

The Physical Therapy Board of California has asked for an opinion regarding the authority of a physical therapist to perform, analyze and report the results of an electroneuromyography (ENMG) examination or study of a patient. Recently, licensed practitioners were told by a third party that they lacked the authority to perform services they had been performing for years. The question posed by the board was whether a physical therapist performing an ENMG study can only provide a “technical” component, presumably the testing of the nerves and muscles and recording the data, or can provide a full spectrum of services. The inverse question is whether the physical therapist can provide a “professional”<sup>1</sup> component of an ENMG study, exercising some form of substantive judgment to interpret the significance of data collected.

CONCLUSION

A physical therapist certified to perform electroneuromyographical evaluations may conduct electroneuromyographical examinations using needles and electrodes, collect data by measuring the electrical waveforms generated during the examination, use his or her professional physical therapy expertise to analyze and interpret such data and develop findings or conclusions regarding the functioning of the patient’s nerves or muscles. In other words, the physical therapist is authorized to provide a “professional” component of an ENMG study, exercising substantive judgment to interpret or read the significance of data collected and convey an opinion about the performance and functioning of the muscles and nerves to the referring physician.

<sup>1</sup> It is our opinion that all aspects of a service performed by a physical therapist within his or her scope of practice are professional, but the term is used here to mirror the question.

## BACKGROUND

ENMG is a means of accumulating data regarding the functioning of the nerves and muscles of a patient. The examination or testing is conducted at the request of a physician to assist in the physician's diagnosis and development of a treatment plan. The referral from the physician generally provides a description of the symptom to be evaluated (i.e., numbness or tingling in the left hand and medial forearm). A suspected diagnosis may be provided to assist the practitioner in determining how to focus the testing or study (i.e., suspected carpal tunnel syndrome). Although the physician may identify specific areas to be tested (i.e., ENMG and nerve conduction studies of the left upper extremity for signs of entrapment neuropathy versus cervical radiculopathy), the practitioner determines which specific muscles and nerves to test, how to perform the test and reports the results to the referring physician.

Electroneuromyographic testing consists of two main parts: a nerve conduction study and a needle electrode examination. The first part, a nerve conduction study, evaluates the function of both sensory and motor nerve conduction. Sensory nerve fibers determine what a person feels and motor nerve fibers control what the muscle does. To perform a nerve conduction study, the practitioner places a recording electrode on the patient's skin above the sensory nerve or above the muscle and applies an electrical stimulus to the nerve from a measured distance. The stimulation creates a waveform that is quantifiable and measures the functioning of the nerve. Depending on the results, the practitioner may measure alternate and additional nerve locations to adapt to the results from the initial location and gather all additional relevant data to make the study more meaningful.

The second part of the study, the needle electrode examination, provides information about a motor unit – a subdivision of the entire muscle. It is performed by inserting a small needle into the muscle of the patient to measure the electrical activity produced by the muscle during rest periods and while being stimulated. The muscle's response time is measured as well as the amplitude (strength) of the response. As the test is conducted, the results are displayed on an oscilloscope or computer monitor and played over a loudspeaker so the practitioner can analyze the data while both seeing and hearing it. As with the nerve conduction study, the practitioner tests in multiple locations, determining where to test based on prior responses. That is, the practitioner must customize the testing based on his or her knowledge and expertise and the results obtained during each step of the study.

Once the study is completed, a report is provided to the referring physician with the conclusions of the study – in particular whether the functioning was normal or abnormal. The report will generally summarize pertinent patient history collected by the practitioner – complaints, symptoms and previously identified conditions. It will then explain conclusions regarding the functioning of the nerve fibers and explain the basis of the conclusions (i.e., slowness in responses in a particular location) and identify any negative evidence (i.e., no evidence was recorded suggestive of an isolated sural nerve entrapment on the left). The report will also generally include the raw data used in the analysis, including detailed results of each measurement recorded, the locations of the relevant stimulus and recording (right, left, wrist, palm, 2<sup>nd</sup> or 3<sup>rd</sup> digit, etc.) and the wave lengths recorded.

## ANALYSIS

To assess the extent of the physical therapist's scope of practice, we first examine the controlling statutes. The practice of physical therapy is defined by Business and Professions Code<sup>2</sup> section 2620, subdivision (a), as follows:

Physical therapy means the art and science of physical or corrective rehabilitation or of physical or corrective treatment of any bodily or mental condition of any person by the use of the physical, chemical, and other properties of heat, light, water, electricity, sound, massage, and active, passive, and resistive exercise, and shall include physical therapy evaluation, treatment planning, instruction and consultative services. The practice of physical therapy includes the promotion and maintenance of physical fitness to enhance the bodily movement related health and wellness of individuals through the use of physical therapy interventions. The use of roentgen rays and radioactive materials, for diagnostic and therapeutic purposes, and the use of electricity for surgical purposes, including cauterization, are not authorized under the term "physical therapy" as used in this chapter, and a license issued pursuant to this chapter does not authorize the diagnosis of disease.  
(Section 2620, subd. (a), emphasis added.)

In addition to the general practice of physical therapy, specific authority is provided to licensees with a special certification from the board that relates to tissue penetration – a necessary part of electroneuromyography. Section 2620.5 provides,

A physical therapist may, upon specified authorization of a physician and surgeon, perform tissue penetration for the purpose of evaluating neuromuscular performance as a part of the practice of physical therapy, as defined in Section 2620, provided the physical therapist is certified by the board to perform the tissue penetration and evaluation and provided the physical therapist does not develop or make diagnostic or prognostic interpretations of the data obtained. Any physical therapist who develops or makes a diagnostic or prognostic interpretation of this data is in violation of the Medical Practice Act (Chapter 5 (commencing with Section 2000) of Division 2), and may be subject to all of the sanctions and penalties set forth in that act.

The board, after meeting and conferring with the Division of Licensing of the Medical Board of California, shall do all of the following:

- (a) Adopt standards and procedures for tissue penetration for the purpose of evaluating neuromuscular performance by certified physical therapists.
- (b) Establish standards for physical therapists to perform tissue penetration for the purpose of evaluating neuromuscular performance.
- (c) Certify physical therapists meeting standards established by the board pursuant to this section.

(Section 2620.5, emphasis added.)

---

<sup>2</sup> Hereafter, all section references are to the Business and Professions Code unless otherwise specified.

The language of section 2620.5 permits a physical therapist to perform tissue or skin penetration, an act not usually authorized by the Physical Therapy Practice Act, "for the purpose of evaluating neuromuscular performance" in the practice of physical therapy. Certain conditions are, however, placed on the physical therapist's ability to exercise this authority: 1) a physician and surgeon must authorize the evaluation; 2) the physical therapist must be certified by the board "to perform the tissue penetration and evaluation"; and 3) the physical therapist must not develop or make diagnostic or prognostic interpretations of the data obtained. (Section 2620.5, emphasis added.) There is no question that, to perform any part of an electroneuromyographical study, which would require penetrating the tissue, the physical therapist must be licensed as a physical therapist and be certified in electroneuromyography.<sup>3</sup> (Section 2620.5, Title 16, California Code of Regulations, section 1399.61.)

Based on this language, it is clear that the statute authorizes a substantive, professional review and critical analysis of the tissue penetration results. Significant to this opinion is the express and repeated authorizations in the statute for the physical therapist to evaluate the patient. ("A physical therapist...may...perform tissue penetration for the purpose of evaluating neuromuscular performance...provided the physical therapist is certified by the board to perform the tissue penetration and evaluation..." Section 2620.5, emphasis added.) The use of the various forms of the word "evaluate" in the statute indicates that the physical therapist will be exercising professional judgment in performing such an activity. The term evaluate is not defined by the Physical Therapy Practice Act. Under standard rules of statutory construction, words are given their ordinary meaning unless the context otherwise requires. *People ex rel. Younger v. Superior Court of Alameda County* (1976) 16 Cal.3d 30, 43, 544 P.2d 1322, 1330, 127 Cal.Rptr. 122, 133, citing *People v. Knowles* (1950) 35 Cal.2d 175, 182-183, 217 P.2d 1. If the meaning is without ambiguity, doubt, or uncertainty, then the language controls. *Security Pacific National Bank v. Wozab*, (1990), 51 Cal.3d 991, 998, 800 P.2d 557, 275 Cal.Rptr. 201; *Delaney v. Superior Court* (1990) 50 Cal.3d 785, 798, 789 P.2d 934, 268 Cal.Rptr. 753. There is nothing to be interpreted or construed. *Lungren v. Deukmejian* (1988) 45 Cal.3d 727, 735, 755 P.2d 299, 248 Cal.Rptr. 115; *IGA Aluminum Products, Inc. v. Manufacturers Bank* (1982) 130 Cal.App.3d 699, 703, 181 Cal.Rptr. 859.

The ordinary definition of a word can be found most readily in the dictionary. The dictionary defines "evaluate" as "1: to determine or fix the value of; 2: to determine the significance, worth, or condition of usually by careful appraisal and study."<sup>4</sup> The second definition is more helpful in this context, since the former definition hints at single value and is less specific. Substituting the dictionary definition in the context of section 2620.5, the physical therapist is authorized to determine the significance or condition of the patient's nerve and muscular performance by careful appraisal and study. Since the physical therapist could not provide careful appraisal or study without exercising professional judgment, there is no basis to read the statute otherwise. This definition is also consistent with other common usages of the term in the physical therapy context. For example, the Association of American Physical Therapy Association (APTA) provides that an

<sup>3</sup> As that point is not particularly an issue here, any further references to a physical therapist assume that the person is both licensed and certified in electroneuromyography.

<sup>4</sup> Evaluate. (2010). In *Merriam-Webster Online Dictionary*. Retrieved June 3, 2010, from <http://www.merriam-webster.com/dictionary/evaluate>

evaluation<sup>5</sup> is "a dynamic process in which the physical therapist makes clinical judgments based on data gathered during the examination." (APTA Guidelines: Occupational Health Physical Therapy: Evaluating Functional Capacity, BOD G10-08-01-01, referencing *Guide to Physical Therapist Practice*, Second Edition. *Phys. Ther.* 2001; 81:9-744.) In the context of electroneuromyography, the evaluation includes an examination and a substantive review of the data to develop an interpretation of the muscle and nerve performance.

This conclusion is also supported by regulatory law. Regulations are enforceable administrative law once duly adopted. (Government Code section 11340.5.) In addition, when an administrative agency, like the Physical Therapy Board of California, is charged with the enforcement of a statute and interprets that statute in a particular manner, unless clearly erroneous, that interpretation is entitled to great weight and respect in interpreting the statute. (*Judson Steel Corp. v. Workers' Comp. Appeals Bd.* (1978), 586 P.2d 564; *Bodinson Mfg. Co. v. California Employment Commission* (1941), 109 P.2d 935; *Reno v. Baird* (1998), 957 P.2d 1333.)

The Physical Therapy Board of California formally adopted regulations to clarify section 2620.5. In particular, it adopted Article 11, "Electromyography Certification," in Title 16, Division 13.2 of the California Code of Regulations.<sup>6</sup> The board's regulations define electroneuromyography as "the performance of tissue penetration for the purpose of evaluating neuromuscular performance, and includes the evaluation of specific abnormal potentials and evoked responses." (Regulation section 1399.60 (a), emphasis added.) As noted above, a physical therapist may perform electroneuromyography only with the appropriate certification from the board. (Regulation section 1399.61.) To be certified, a person must be licensed as a physical therapist, meet specific training, education, and experience requirements, and take an exam. (Regulation sections 1399.64 and 1399.65.)

The requirements for certification are painstakingly detailed in the board's regulations. The required education may be completed by coursework in the subjects of:

1. Gross anatomy – the muscular system of the body with emphasis on the structural and cross sectional relationships.
2. Neuroanatomy – organization and functional features of the central and peripheral nervous system, emphasizing the course of peripheral nerves and patterns of innervation.
3. Nerve and muscle physiology – bioelectric currents and their characteristic wave forms and conduction over peripheral nerves.
4. Clinical neurology, mycology and pathology – identification of clinical characteristics of neurogenic and myogenic disorders.
5. Physical science of electroneuromyography – basic electrophysiology and the identification and recording of bioelectric signals.
6. Clinical science of electroneuromyography – knowledge and procedures of patient evaluation and examination including electromyographic and nerve conduction velocity studies, and training in tissue penetration.

(Regulation section 1399.64(b)(1), emphasis added.)

---

<sup>5</sup> This definition is describing that which a physical therapist does with any patient, not just the subject of an ENMG examination.

<sup>6</sup> Hereafter, all references to "regulation" refer to title 16 of the California Code of Regulations.

Clinical training must be obtained in tissue penetration for the purpose of evaluation of muscular or neuromuscular performance, and must include specified instructions and demonstrations to develop and show competency. (Regulation section 1399.64.) Before sitting for the examination, the physical therapist must have experience of at least 400 hours in electroneuromyography and have completed 200 electroneuromyographic examinations. (Regulation section 1399.64(c).) Finally, before being certified by the board, the physical therapist must have successfully passed an examination for competence in the following subjects:

- (a) Basic science as related to electroneuromyography:
    - (1) Anatomy
    - (2) Electrophysiology
    - (3) Neuromuscular pathology.
  - (b) Clinical science as related to electroneuromyography:
    - (1) Instrumentation
    - (2) Pre-examination patient evaluation
    - (3) Examination procedure and process
    - (4) Interpretation and recording of examination records and data.
  - (c) Practical application of electroneuromyography:
    - (1) Needle examination of muscles
    - (2) Motor and sensory nerve conduction velocity examinations.
    - (3) Handling of equipment
    - (4) Patient preparation and management
    - (5) Data collection, presentation and summarization.
- (Regulation section 1399.67, emphasis added.)

To be certified, the physical therapist must be able to perform the technical aspects of the procedure, including instrumentation, examination procedure and process, handling the equipment, preparing the patient and collecting data. (Regulation sections 1399.64 and 1399.67, subsections (b) and (c).) To be certified, the physical therapist must also have extensive training in anatomy, electrophysiology, neuromuscular pathology, needle examinations, and nerve conduction velocity examinations. (*Id.*) In addition to the technical aspects, the physical therapist is also clearly trained in applying the knowledge to the data collected and *interpreting* the examination records and data, and presenting and summarizing it for the physician. (Regulation section 1399.67, subsection (b)(4) and (c)(5).)

The certification requirements are significant, onerous and designed to provide the licensee, who is already required to have at least a master's degree, with additional education and training before being given the special certification and authority. (Section 2650; Accreditation Handbook, Commission on Accreditation in Physical Therapy Education of the American Physical Therapy Association.) Those requirements uniquely qualify the physical therapist to interpret the examination data and analyze the functioning of the patient's nerves and muscles. Even had there been any doubt about the statutory language, the level of specificity and detail in the regulations, developed in conjunction with the Medical Board of California, make it clear that the board has authorized the certified physical therapist to perform the full spectrum of functions with respect to an ENMG to evaluate nerve and muscle functions.

Another tenet of statutory construction is that the statutory scheme, here the Physical Therapy Practice Act, must also be read as a whole and harmonized. (*People v. Murphy* (2001), 25 Cal.4th 136, 19 P.3d 1129; *DuBois v. Workers' Comp. Appeals Bd.* (1993) 5 Cal.4<sup>th</sup> 382, 388.) The physical therapist is authorized to perform the ENMG study "for the purpose of evaluating neuromuscular performance as a part of the practice of physical therapy." (Section 2620.5, emphasis added.) The practice of physical therapy is the "art and science" of rehabilitation or treatment of a condition using of several means, including "consultative services." (Section 2620.) As noted above, in performing the study, the physical therapist must use his expertise and each consecutive result to determine the next location on the patient to test. As noted in the definition above, in order to "evaluate" the neuromuscular performance, the physical therapist must exercise both technical and professional skills. This is further supported by the training requirements that to be certified, the practitioner must have "knowledge and procedures of patient evaluation and examination including electromyographic and nerve conduction velocity studies, and training in tissue penetration." (Regulation section 1399.64 (b).) Finally, the physical therapist must also consider and interpret the results of all the data collected to determine the neuromuscular performance. It is this data that is summarized and provided to the referring physician. (Regulation section 1399.67.) Indeed, unless the physical therapist uses professional judgment and interprets the data in a professional opinion, the evaluation would be meaningless to a physician lacking specialized knowledge in the subject matter.

Some may argue that because section 2620.5 provides that a physical therapist may not make a diagnosis or prognosis, that limitation leads to a conclusion that a physical therapist may not exercise professional judgment and provide a professional opinion in an ENMG study. We disagree. Section 2620.5 expressly prohibits a physical therapist from developing or making a "diagnostic or prognostic interpretation."<sup>7</sup> The dictionary defines "diagnostic" as:

- 1 a:** of, relating to, or used in diagnosis <a diagnostic tool> **b:** using the methods of or yielding a diagnosis <diagnostic tests>
- 2:** serving to distinguish or identify <a diagnostic feature><sup>8</sup>

It has also more simply been defined as, "Helpful in making a diagnosis; having a bearing on diagnosis; pertaining to diagnosis."<sup>9</sup> In turn, "diagnosis" is defined as:

- 1 a:** the art or act of identifying a disease from its signs and symptoms **b:** the decision reached by diagnosis
- 2:** a concise technical description of a taxon
- 3 a:** investigation or analysis of the cause or nature of a condition, situation, or problem <diagnosis of engine trouble> **b:** a statement or conclusion from such an analysis<sup>10</sup>

---

<sup>7</sup> This limitation of authority is also required to be stated in any ENMG report prepared by a physical therapist. (Regulation section 1399.70.)

<sup>8</sup> Diagnostic. (2010). In *Merriam-Webster Online Dictionary*. Retrieved June 3, 2010, from <http://www.merriam-webster.com/dictionary/diagnostic>

<sup>9</sup> Vol.2-D, J.E. Schmidt, M.D., *Attorneys' Dictionary of Medicine*, (Matthew Bender)

<sup>10</sup> Diagnosis. (2010). In *Merriam-Webster Online Dictionary*. Retrieved June 3, 2010, from <http://www.merriam-webster.com/dictionary/diagnosis>

Diagnosis is defined in an attorneys' dictionary as "The determination of what kind of disease a patient is suffering from, especially the art of distinguishing between several possibilities."<sup>11</sup> By these definitions, the term diagnosis is tied to identifying the disease or cause of a condition. A diagnostic interpretation is therefore an interpretation that would identify the *cause* of a condition. Prognostic means "something that foretells."<sup>12</sup> It is defined by an attorneys' dictionary as "The outlook or chances of recovery from a disease, as judged by the nature and severity of the ailment, the condition of the patient, etc. Also, the forecast as to the likely outcome of a disease in a given case."<sup>13</sup> Thus, a prognostic interpretation would be one that looks to what may happen as a result of the condition.

The limitation in section 2620.5 must be read in conjunction with the language in section 2620 that provides that physical therapy does not include the diagnosis of disease. Read as a whole, the Physical Therapy Practice Act prohibits a physical therapist from providing an interpretation suggesting a cause (in the case of one that is diagnostic) or a likely result (in the case of one that is prognostic). For example, a physical therapist could not interpret the data to find that the patient suffered from carpal tunnel syndrome or anticipate that the patient might ultimately lose the use of a limb. In the case of an ENMG study performed by a physical therapist, the purpose is to evaluate the functioning of the nerve and muscle. Thus, a physical therapist's ENMG report is limited to interpreting the examination data to draw conclusions about the overall performance and functioning of the muscles and nerves (i.e., severe slowing and marked reduced evoked amplitude for ulnar nerve stimulation proximal to the medial epicondyle, reduced recruitment patterns and polyphasic and fast firing motor units, but no signs of acute/recent denervation). The prohibition against a physical therapist providing a diagnostic or prognostic interpretation does *not*, therefore, limit a physical therapist's ability to exercise professional judgment to interpret or read the data collected and draw conclusions regarding the performance and functioning of the muscles and nerves. A contrary interpretation would invalidate the remaining provisions of the Physical Therapy Practice Act and regulations and lead to an absurd result, which the rules of statutory construction direct us to avoid if at all possible when interpreting statutes. (*Ex parte Cregler* (1961), 56 Cal.2d. 308, 363 P.2d 305.)

This opinion has been reviewed and concurred in by counsel to the Medical Board of California, Supervising Staff Counsel Anita Scuri.

We trust the foregoing is responsive to your request.

cc: Anita Scuri  
Claire Yazigi

---

<sup>11</sup> Vol.2-D, J.E. Schmidt, M.D., Attorneys' Dictionary of Medicine, (Matthew Bender)

<sup>12</sup> Prognostic. (2010). In *Merriam-Webster Online Dictionary*. Retrieved June 3, 2010, from <http://www.merriam-webster.com/dictionary/prognostic>

<sup>13</sup> Vol.5-P, J.E. Schmidt, M.D., Attorneys' Dictionary of Medicine, (Matthew Bender)