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Standards of Practice for Neurofeedback and Neurotherapy: A Position Paper of the International Society for Neurofeedback & Research

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POSITION PAPER

STANDARDS OF PRACTICE FOR NEUROFEEDBACK AND NEUROTHERAPY: A POSITION PAPER OF THE INTERNATIONAL SOCIETY FOR NEUROFEEDBACK & RESEARCH

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This position paper of the International Society for Neurofeedback and Research (ISNR) sets forth standards and guidelines for the practice of neurofeedback and neurotherapy. Issues discussed include competency, qualifications of practitioners, scope of practice, informed consent, pretreatment assessment, standards for remote training, record keeping and billing, accountability, standards for practitioner training and qualifications to be trained, adequate supervision and coaching of training sessions, ethical advertising, standards for professional societies, and standards for those who sell and manufacture neurofeedback equipment.

INTRODUCTION

The guidelines and standards set forth in this paper are the product of deliberations by the interdisciplinary Standards of Practice Committee of the International Society for Neurofeedback and Research (ISNR). This paper has been accepted by the Board of Directors of ISNR as a position paper of the Society.

PURPOSE AND RATIONALE FOR PRACTICE GUIDELINES

Practice standards begin to be created within professional specialties as they become well established. Two factors have particularly encouraged ISNR to develop standards of practice to be made available to both practitioners and members of the public: (a) It has become

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increasingly evident that there are unlicensed individuals offering neurofeedback services to the public for psychological, psychiatric, and medical conditions that they are both clinically and legally unqualified to treat, and (b) the profession has come to realize that advanced neurofeedback technologies not only have the capacity to produce significant improvements in brain functioning with various diagnostic conditions but also are sufficiently powerful that when misapplied can occasionally result in side effects and sometimes more serious iatrogenic adverse effects. Technology that has the potential to help remediate significant problems can also have the potential to harm when practitioners lack appropriate qualifications and competence. Therefore, having standards of practice is part of a profession's obligation to the public for consumer protection. Clinical decision making should be governed by what is both clinically sound and in the client's best interest. The provider is encouraged to always operate with this thought in mind: Would my practice procedures stand up under the scrutiny of the public, the courts, and other practicing professionals?

The guidelines presented in this position paper are meant to apply to neurofeedback providers who are delivering and offering services to the public for remuneration (monetary or nonmonetary), whether they are in private practice, a group practice, or an institutional or organizational setting. These standards are meant to be voluntary and are offered as guidelines for quality assurance in neurofeedback practice. These standards describe the quality of services that the association believes providers should strive to attain in acting in the client's best interest but that simultaneously are meant to minimize liability risks when they are followed. The guidelines describe the acceptable levels of education and training that are believed to be consistent with the services that practitioners provide.

The standards are not meant to rigidly constrain practitioners from employing new methods and innovative procedures and disseminating those results to others. However, the guidelines seek to identify potential deficits

in the delivery of neurofeedback services and to encourage their correction and to establish minimum standards of professional conduct in the delivery of neurofeedback services. These guidelines are not meant to diminish the scope of practice of any professional specialty that is licensed in states or provinces. However, they should both serve as guiding principles for service delivery and to provide a basis for evaluating the standard of care and performance of individual clinical practitioners and serve to provide guidelines for training new practitioners or graduate students in EEG biofeedback. These standards may be used by other regulatory agencies in setting or defining minimum standards of conduct for health care practitioners who provide neurofeedback services in both clinical and nonclinical settings.

DEFINITION OF TERMS

The following terms are used in this paper:

Neurofeedback: Also known as EEG biofeedback, neurofeedback is a process in which sensors are placed on the scalp and devices are used to monitor and provide moment-to-moment information that is fed back to the individual about his or her physiological brain activity for purposes of improving brain functioning. A more detailed definition may be found on the website of the International Society for Neurofeedback and Research (<http://www.isnr.org>).

Neurotherapy: The terms *neurofeedback* and *neurotherapy* are used interchangeably in this paper. Neurotherapy is a term that encompasses neurofeedback and refers to the use of other modalities used to modify brain patterns such as audio-visual stimulation, magnetic stimulation, and fMRI neurofeedback.

Diagnostic conditions: This term refers to diagnostically labeled conditions such as those that appear in the *Diagnostic and Statistical Manuals* (e.g., *DSM-IV*) from the American Psychiatric Association or in the international diagnostic classification system

(e.g., ICD-10). For instance, “diagnostic conditions” would include (but not be limited to) the following conditions: attention deficit disorder (ADD)/attention deficit hyperactivity disorder (ADHD), learning disabilities, autism, Asperger’s syndrome, depression, anxiety disorder, panic disorder, obsessive-compulsive disorder, bipolar disorder, schizophrenia, developmental disabilities, epilepsy, traumatic brain injury, stroke, fibromyalgia, chronic fatigue syndrome, Tourette’s syndrome, Parkinson’s, alcoholism, substance abuse, posttraumatic stress disorder, reactive attachment disorder, insomnia or sleep disorders.

Client or patient: These are terms that are used interchangeably to refer to the recipient of neurofeedback services.

Practitioner, provider, clinician: These are terms used interchangeably to refer to licensed professionals who are offering or rendering neurofeedback services to assist in working with diagnostic conditions as previously defined.

Technician: This term refers to a person providing neurofeedback services who is not licensed for independent practice in a health care or mental health profession within their state or province.

Remote Trainer: This term refers to a client who obtains neurofeedback equipment for purposes of conducting training at home, in a hospital, or other remote location under the supervision of a qualified practitioner. Due to risks of harm, home training should never be done when a licensed professional is not supervising it.

Scope of practice: This term refers to the various mental health or medical conditions that are specified as being acceptable problems for clinical practice in different professions (e.g., physicians, psychologists, social workers, licensed professional counselors, marriage and family therapists, chiropractors, nurse practitioners, registered nurses, physical therapists, speech and language pathologists, etc.) as commonly delineated in the licensure laws of the various professions as set forth in the statutes of the

states, provinces, or countries in which the practitioner resides.

PROVIDERS, SCOPE OF PRACTICE, AND COMPETENCY

Neurofeedback practitioners who hold themselves out as qualified to offer services and work with diagnostic conditions shall be individuals who are licensed by their state, province, or country for independent practice within a recognized mental health or health care profession and who are working within the scope of practice of their particular state license. If operating outside their scope of practice, they should obtain professional support and consultation, which should be readily available. In addition to their licensure they should be able to demonstrate training and education with regard to the conditions for which they offer treatment. In the specialty of neurofeedback it is recommended that providers meet criteria for being board certified in neurofeedback by the Biofeedback Certification International Alliance (BCIA) as specified in their Blueprint of Knowledge in EEG Biofeedback (<http://www.bcia.org>).

Completion of an introductory training course does not qualify a provider to independently offer neurofeedback services or conduct neurofeedback research without ongoing consultation, mentoring, or supervision. After completion of an introductory course, practitioners should limit their clients to cases approved by their supervisor or mentor to ensure adequate supervision and appropriate matching of the client’s level of complexity to the practitioner’s skills. In a group providing neurofeedback services, one or more of the providers in the group should meet the qualifications described in these standards when they are providing neurofeedback for diagnostic conditions. It is considered unethical for someone to conduct outcome research on neurofeedback when they do not have documented clinical training and competence with neurofeedback or are not being supervised by such a competent clinician.

Individuals conducting assessment utilizing quantitative EEG (QEEG) or any type of brain mapping should be able to document training in gathering reliable data. A much higher standard is required for someone to hold himself or herself out as competent to analyze and interpret QEEG data (Hammond et al., 2004). If the provider is analyzing and interpreting their own QEEG data it is strongly recommended that they should hold diplomate status in QEEG from the Quantitative Electroencephalography Certification Board or be certified by the EEG and Clinical Neuroscience Society (or a comparable neurology board in the case of physicians), or be analyzing data under the supervision of such a certified person, or at a minimum be able to demonstrate thorough education, training, and work product documenting their competence to interpret QEEGs. Otherwise, we believe that QEEG data should be submitted for analysis by an individual with such certification. Further details about qualifications for competency in doing QEEG evaluations will be provided in another ISNR position paper on this topic.

Where neurofeedback services are being rendered for diagnosable psychological, psychiatric, or medical conditions, the facility where the services are provided should have such a licensed professional always present at the facility who accepts ethical responsibility and accountability for supervising the neurofeedback services that are being provided for such conditions. Such a licensed supervising professional should have the authority and should participate sufficiently to enable him or her to accept professional responsibility for the services, to evaluate them, and to monitor the outcomes, including side effects or adverse reactions. When cases present the practitioner with issues that challenge their level of competence or with which they are inexperienced, they are advised to refer such individuals or seek consultation. Providers avoid engaging in dual relationships and avoid conflicts of interest (e.g., financial, with students, supervisees, relatives) with individuals seeking treatment for diagnostic conditions of a medical, psychiatric or psychological nature.

Those providing neurofeedback services to individuals with diagnostic conditions as defined in ICD or *DSM* manuals and who are not licensed to work with such conditions should be evaluated and supervised by a professional who is licensed to treat such condition(s) and is on-site providing full time face-to-face supervision with the person providing the direct service. They should provide supervised services only after the licensed professional has evaluated the patient and set a treatment plan. The tasks assigned to such unlicensed individuals should be in keeping with their demonstrated level of competence and training and with applicable state law governing the health professions and the statute under which the supervisor is licensed. It is recognized that the level of supervision may vary depending on the complexity of the condition and individual being treated. The ultimate ethical responsibility and accountability for services performed by unlicensed persons to persons with diagnostic conditions rests with the licensed supervisor who reviews the assessment, treatment plans, course of treatment, and outcomes. Thus the nature of the supervisory relationship should be explicitly communicated in writing and written agreements with the unlicensed technician. Such a document should detail their duties, range of responsibilities, types of services, limits of independent actions, and responsibilities for reporting side effects or adverse reactions to their supervisor.

Neurofeedback practitioners abide by the ethical standards of their professions (e.g., APA, AMA, NASW, etc.) and practice in conformity with their relevant legal statutes. They seek consultation from other licensed professionals when confronted with unique clinical situations or significant side effects or adverse reactions, or provide referrals when indicated. When practitioners become aware of unlicensed individuals advertising and providing neurofeedback services for individuals with diagnostic conditions, it represents an issue of protection of the public requiring that they report such practices to appropriate state or provincial regulatory authorities. Practitioners

recognize that neurofeedback represents simply one treatment procedure. As such, clinicians have the responsibility, depending on the nature of presenting problems and progress with neurofeedback, to weigh the range of psychotherapeutic, medication/medical, peripheral biofeedback and other treatment options for the condition, including the option of referral. There may be many cases in which neurofeedback is embedded as one modality in a multimodal treatment package.

ASSESSMENT PROCEDURES PRIOR TO NEUROFEEDBACK TRAINING

Prior to providing neurofeedback treatment an adequate history should be obtained of medical and psychological/psychiatric problems and symptoms, the individual's prior treatment history, and current medications the patient may be taking. The nature of the presenting problem and goals of the neurofeedback training will undoubtedly to some extent determine the type and extent of pretreatment assessment procedures. An objective assessment of the client's EEG function should precede neurofeedback training. There are several procedures by which this may be accomplished, the most thorough being a quantitative EEG (QEEG) wherein the functioning of the brain is objectively assessed in comparison with normative data for the patient's age, clinical and family history, and presenting symptoms.

Clinicians are advised to take into account risk management factors such as case complexity, symptom severity, chronicity of symptoms, suicide history and potential, Axis 2 diagnoses, emotional lability, dissociative symptoms, history of abuse, oversensitivity to prior treatments, litigiousness, and presence of various comorbid conditions. These all represent conditions that may pose a potentially greater risk for practitioners and that may require a higher level of expertise. Clinicians particularly minimize their practice risks in treatment of such patients by using more thorough assessment procedures (e.g., QEEG, psychological or neuropsychological testing), with an active informed consent process;

careful chart documentation that demonstrates a reasonable standard of care with regard to the assessment, treatment planning, and the implementation of treatment and regular monitoring of progress and side effects; as well as obtaining consultation when confronted with challenging clinical situations.

When accepting individuals who are seeking assistance with medically related conditions, practitioners should be cautious in determining that appropriate medical evaluations have been conducted. Neurofeedback practitioners work cooperatively and respectfully with other health care or mental health professionals.

Maintaining Competence

All neurofeedback providers should seek to maintain current knowledge of scientific and professional developments related to the services that they provide through attending continuing education workshops and scientific meetings and reading professional publications, with the ability to document this professional development. If providers offer several neurofeedback modalities in their practices, they should undergo continuing education activities in each of these areas to remain current in new developments in equipment, software, and best practices associated with these services.

Record Keeping and Billing

Neurofeedback practitioners keep accurate records of the services provided. Such records should include information documenting an informed consent process, disclosure of the practitioner's policies and procedures (including procedures in case of emergencies), dates of service, fees charged and payments received, assessment information, types of services, and neurofeedback and ancillary treatment procedures that were used. Any side effects or adverse reactions, as well as regular notations of progress, should be chart noted. Appropriate protections are provided to ensure confidentiality of records and compliance with the Health Insurance Portability and Accountability Act (HIPPA), and confidential information is not released without appropriate written consent of the client or his or her legal representative. Practitioners are obligated to

insure that information recorded and/or communicated electronically is appropriately protected and breaches in this information are reported to patients.

When providers bill insurance or flexible spending accounts, or assist clients/patients in obtaining reimbursement they should accurately describe their services, use appropriate procedure codes and inform service recipients of the limits on confidentiality of claims submitted, in accord with state or provincial statutes. Practitioners do not knowingly falsify claims, diagnoses, or procedure codes, and services provided by unlicensed assistants are not billed as if they were provided by the licensed professional in a manner that would constitute insurance fraud. Practitioners are also encouraged, in the public interest, to consider providing some services at a reduced fee or for no financial return.

Manufacturers, distributors, and resellers of EEG biofeedback and EEG equipment should maintain records documenting the evidence of their due diligence in determining that purchasers of this equipment are licensed for independent practice in their mental health or health care profession, in accordance with FDA regulations which specify that EEG biofeedback equipment and EEG signal monitoring equipment represent Type II medical devices that should be sold only to licensed health care providers.

There have been instances of therapists billing neurofeedback services using psychotherapy codes rather than biofeedback/psychophysiological psychotherapy codes and using psychotherapy procedure codes for biofeedback procedures constitutes fraudulent billing.

ACCOUNTABILITY

Providers practice in a manner that promotes the welfare of their clients/patients. Therefore, providers work with problems that fall under their professional scope of practice and with which they are competent to work by nature of their training, study, and available consultation. They perform appropriate history taking and assessments prior to providing neurofeedback treatment, and they regularly assess the

effectiveness of the services provided. Practitioners are aware that occasionally side effects or negative effects may occur (Hammond & Kirk, 2008; Hammond, Stockdale, Hoffman, Ayers, & Nash, 2001; Lubar & Shouse, 1976, 1977; Todder, Levine, Dwolatzky, & Kaplan, 2010), and they inquire frequently about any side effects or adverse reactions.

It is recommended that clinicians obtain ratings of symptom severity at time intervals deemed clinically appropriate to gauge progress or deterioration. Practitioners are also encouraged as often as feasible to use objective pre- and posttreatment EEG and outcome measures to assist in evaluating results of training. When it is determined that side effects or negative effects are occurring, providers document the details, discuss them with the client, and take appropriate action to remediate negative effects as quickly as possible. Such action may include modifying neurofeedback protocols, titrating the amount or frequency of treatment, utilizing adjunctive treatments, and seeking consultation.

INFORMED CONSENT

Informed consent is considered to be a meaningful educational process that occurs throughout treatment, rather than a one-time event that is done only at the beginning of treatment with the client or his or her guardian or legal representative. It allows the patient or representative to make an informed decision about the nature of treatments that are being recommended and the rationale for the treatment for the presenting complaints or goals. This process seeks to respect the client or the competent representative's right to make an informed judgment about the recommended treatment being offered, about alternative treatments that would be available for his or her condition, and the anticipated benefits and risks of each of these. Because the patient must be competent to provide informed consent, provisions must be made for handling patient limitations (e.g., language fluency, deafness, impaired cognitive abilities). Neurofeedback practitioners also explain alternative treatment options. For example, someone

seeking neurofeedback treatment may be informed that medication treatment is an alternative. In another illustration, for a patient with obsessive-compulsive disorder or depression, the provider may indicate that cognitive behavior therapy and medication treatment alternatives have been better investigated than neurofeedback and state the possible benefits and downsides associated with such treatments.

Thus it is important to provide patients with sufficient information to make an informed decision, to allow them time to ask questions, and to then give consent in writing or at a minimum verbally, with this process being chart-documented. The informed consent process should clearly indicate that the client is free to discontinue neurofeedback and treatment at any time, without penalty. Informed consent should occur with regard to assessment procedures, fees, procedures for billings and collections, limits of confidentiality, recommended treatments, the practitioner's qualifications, anticipated frequency and duration of treatment, and right to discontinue treatment. Written permission should be obtained from clients providing their permission to anonymously use data that are collected as part of research that may be compiled, or as part of courses or presentations. If a student or technician is providing services under supervision, this information along with the supervisor's name and contact information should be provided to patients.

The written informed consent also should indicate the clinical problems to which neurofeedback may be applied but for which reasonable peer reviewed research support has not yet been obtained. Neurofeedback practitioners must inform and adequately represent to the client the current level of efficacy of neurofeedback for their condition based upon the available peer-reviewed literature. For example, at the time this paper is being authored, areas we regard as lacking adequate research support to be considered "probably efficacious" (LaVaque et al., 2002) would include (but not necessarily be limited to) depression, bipolar disorder, obsessive-compulsive disorder, Tourette's

syndrome, Parkinson's tremors, cerebral palsy, essential tremor, fibromyalgia, chronic fatigue, schizophrenia, and physical balance. In contrast, considerable research evidence supports neurofeedback training with ADD/ADHD, uncontrolled epilepsy, insomnia, and addictive disorders (Sokhadze, Cannon, & Trudeau, 2008). Informing patients of conditions for which the application of neurofeedback may be considered an innovative or experimental treatment provides both adequate informed consent and liability protection for the provider. We consider it wise to also openly acknowledge that even with clinical problems for which the neurofeedback practitioner considers there to be adequate validation of its effectiveness, some other professionals and insurance companies who are not well acquainted with the neurofeedback literature, or who espouse alternative treatment approaches, may still regard neurofeedback treatments as experimental.

Potential risks and limitations of the proposed neurofeedback treatment should also be acknowledged, including the fact that neurofeedback is not always effective. For example, prospective clients should be informed that at least occasionally it is possible for a side effect to occur (e.g., fatigue, headache, anxiety, difficulty falling asleep) and that, should such an effect occur, the patient is requested to quickly inform the provider so that adjustments in procedure can be made. It is considered unethical to tell clients that side effects never occur. Likewise, many publications suggest that at least 20% of patients will not obtain significant improvements from neurofeedback. We cannot and do not help everyone. This is information that should be provided to new clients. Although it is beneficial to convey confidence to the client, it must be tempered with objectivity and factual accuracy.

Terminating Services

Practitioners do not seek to induce clients to continue neurofeedback unreasonably when it does not seem to be producing benefits or providing further improvements. In recommending the termination of services, referral,

or a switch to an alternative (or additional) treatment, it is prudent to carefully clarify the reasons for the recommendations and involve the client in the decision as much as is clinically appropriate.

Illustrations of Problems

The authors are aware of diagnostic conditions such as ADD/ADHD where published research studies have suggested that 40 to 50 sessions have generally been required for positive outcomes but where a provider has initially informed new patients that they will likely need to come for 100 sessions to obtain the desired benefits (or the opposite, that a small number of sessions will produce lasting results). We have also observed instances in which neurofeedback is being “oversold” and misrepresented as a highly effective treatment for conditions about which published controlled research is not available. We recognize the number of sessions required or the decision to cease treatment is a joint decision between the clinician and patient and is based upon complex factors such as diagnosis, response to treatment, comorbid conditions, and psychosocial stressors.

STANDARDS FOR HOME OR REMOTE TRAINING

There are times when geographical location or chronicity of patient problems makes it particularly desirable for patients to be able to do neurofeedback training at home or another remote setting. In cases like this, some providers rent or allow purchase of neurofeedback equipment for remote training use. The neurofeedback practitioner must accept full accountability and liability for such training, with its increased risks. Individuals being considered for remote training should be informed that there is very limited research (Cortooos, De Valck, Arns, Breteler, & Chuydts, 2010) on the outcome rates that may be anticipated from such training.

Remote training should occur only after the clinician has gathered history and conducted an evaluation in the office. The person offering

remote training for use with individuals with diagnostic conditions should also check applicable licensure laws with regard to providing services to someone residing in another state and whether he or she needs to be licensed to practice in that state. It is incumbent upon the supervising clinician to train the person who will be doing on-site supervision of the remote training (e.g., a parent, caregiver) in equipment operation, preparation and placement of sensors, and coaching. The clinician also consults regularly through periodic office visits, or via telephone or Internet, to monitor statistics and treatment progress. It is strongly recommended that remote training should not occur until the practitioner has provided adequate in-office neurofeedback sessions to the client, adjusting treatment protocols and thresholds, determining patterns of client response to training, and tutoring the person doing the remote training. Provision must be made for the neurofeedback provider to obtain statistics and progress reports on a weekly basis from the remote training, through the Internet, mail, or telephone. However, an ideal method for remote supervision would be supervision of individual sessions live via the Internet. The person training remotely should report any side effects or adverse reactions immediately. It is also recommended that equipment be used that does not allow the remote trainer to change treatment protocols, which should be strictly done by the neurofeedback professional. It is also important for the clinician to have a periodic face-to-face session with the person doing remote training to personally evaluate progress and plan for any modifications in training procedure.

The clinician supervising remote training should have a written agreement with the remote training client that clearly specifies the frequency with which data must be provided to the clinician, frequency of in-office visits required; that the equipment is not to be used with anyone other than the client; and expectations about rental fees and how costs will be handled for damage or repairs to equipment, or for equipment that is stolen. If remote training involves a rental or lease agreement, it should provide for the immediate return of equipment

to the practitioner should the clinician determine that it is being used inappropriately or used with one or more individuals who were not part of the original assessment and procedure. Further, the agreement should specify that the holder of equipment may not hold himself or herself out to be a practitioner or provider of neurofeedback services, nor may he or she provide such services without the express consent of the clinician. Where individuals purchase equipment from a manufacturer or from a clinician, and the seller or clinician becomes aware that the person is rendering services either for value or for free, outside of the scope of the agreement with the clinician, the purchase agreement should contain a clause informing the purchaser that under these conditions the clinician is obligated to report this unauthorized use to appropriate licensing boards in that state for the possible violation of regulations governing the practice of psychology, psychotherapy, or medicine.

SUPERVISION AND COACHING NEUROFEEDBACK SESSIONS

Published research in the field has commonly been based on having an experienced practitioner providing the services, remain with the patient, and coach the patient during neurofeedback. This should be considered the acceptable standard of care in the field. In contrast, we have become aware of too many offices in which technicians hook up clients to equipment and then leave them alone for a significant portion of sessions rather than remaining with them and serving as an additional source of feedback, reinforcement, and encouragement. An adequate standard of care requires coaching of the client rather than a treatment mill environment with multiple booths where clients are hooked up to equipment by technicians and then left largely unsupervised. As an example, individuals with ADD/ADHD can just as easily lose focus and allow their minds to wander while in front of a computer screen doing neurofeedback as they can in a classroom. Furthermore, many clients are sleep deprived and they can easily

become drowsy and lose focus when a provider does not remain with them to note such activity and encourage vigilance, thus reducing the likelihood of treatment being ineffective or requiring an inordinate amount of time. If providers leave technicians or parents with the client to provide the coaching, the process of how this is done should have been demonstrated and the coach should receive ongoing supervision from the provider.

When practitioners are asked to provide consultative training for new practitioners, they should clarify in writing the nature of their relationship. For instance, if mentors do not intend to provide supervision with the accountability that it entails, for their own liability protection they may want to obtain a document from the person they are mentoring indicating that their instruction time represents individual continuing education and not supervision.

TRAINING, ADVERTISING, AND EQUIPMENT SALES

Manufacturers, professional societies, and members of this field's societies should not be admitting individuals to clinical training workshops that focus on improving brain function associated with diagnostic conditions unless they are licensed for independent practice in a health care or mental health profession, have a letter from their graduate school advisers in accredited institutions, or can verify through a letter from their employer that they are a technician who is being supervised full time, on-site by a licensed professional who meets criteria for BCIA certification in EEG biofeedback.

Professional societies, such as ISNR and the Association for Applied Psychophysiology and Biofeedback (AAPB), should not allow students, manufacturers, or unlicensed persons to be listed under "clinical provider" sections of websites, or even be listed as members in the same list as licensed individuals. Societies and manufacturers should not allow unlicensed persons to be listed in a manner that implies to members of the public that these individuals are qualified to offer clinical services. Listing

unlicensed individuals in such a manner places organizations in the untenable position of implicitly allowing unlicensed persons to advertise to the public and misrepresent credentials. For persons to be identified under a provider section on a website they should be required to provide a copy of their state or provincial license each year to continue to be listed. Websites should have separate sections for Licensed Clinical Providers, Researcher/Educators, Students, Manufacturers, and Unlicensed Members. In print or website advertising, clinicians should not promote neurofeedback as effective for conditions where controlled research evidence is not present.

The individual practitioner assumes responsibility for the accuracy and ethicalness of all information in any advertising or listing, whether in print or in Internet listings or advertising. Advertising (whether printed, broadcast, or Internet) should consist of ethical announcements of the availability of neurofeedback services and contact information. Claims of efficacy of neurofeedback should be discouraged in advertising, and especially claims for efficacy in conditions for which there is no clear evidence in peer review professional publications. Statements claiming cure or remission from neurofeedback treatment of a condition are unethical and undermine the relationships of clients with legitimate ethical providers. Advertising that claims any association between a product, technique, or clinical practice because the technique, product, or practitioner has been the subject of a presentation or displayed at ISNR meetings is misleading. ISNR does not explicitly or implicitly endorse any neurotherapy practice, product, or technique. Any inferences made by advertisements that products, practitioners, or techniques are endorsed by ISNR are patently false and misleading. Serious harm is done to the scientific credibility of neurofeedback by advertising based on unsubstantiated claims, and such advertising is unethical. Neurofeedback practitioners who are associated with multidisciplinary practices with marketing and public relations delegated to managers are responsible for reviewing that advertising to

ensure that it is ethical and factual. Neurofeedback practitioners are expected to adhere to the commonly accepted ethical standards for public relations and advertising that prevail for licensed health care providers.

Manufacturers, distributors, and resellers of EEG biofeedback equipment or EEG devices should perform due diligence to determine that those purchasing equipment meet the qualifications for providing clinical services previously specified.

SUMMARY AND CONCLUSIONS

As we have indicated, practice standards begin to be created within professional specialties as they become well established, and the establishment of standards of practice is part of a profession's obligation to the public for consumer protection. We believe that these standards will help the public evaluate if providers of neurofeedback services have adequate qualifications and are offering an adequate standard of care to their clients. It is expected that these standards will be further refined as continuing research provides more information on best practices in neurofeedback. It is hoped that these standards also will provide a basis for greater uniformity in legislative, regulatory, and legal actions and for accreditation of training programs in the future.

REFERENCES

- Cortoos, A., De Valck, E., Arns, M., Breteler, M. H. M., & Chuydts, R. (2010). An exploratory study on the effects of tele-neurofeedback and tele-biofeedback on objective and subjective sleep in patients with primary insomnia. *Applied Psychophysiology & Biofeedback, 35*, 125–134.
- Hammond, D. C., & Kirk, L. (2008). First, do no harm: Adverse effects and the need for practice standards in neurofeedback. *Journal of Neurotherapy, 12*(1), 79–88.
- Hammond, D. C., Stockdale, S., Hoffman, D., Ayers, M. E., & Nash, J. (2001). Adverse reactions and potential iatrogenic effects in

- neurofeedback training. *Journal of Neurotherapy*, 4(4), 57–69.
- Hammond, D. C., Walker, J., Hoffman, D., Lubar, J. F., Trudeau, D., Gurnee, R., & Horvat, J. (2004). Standards for the use of QEEG in neurofeedback: A position paper of the International Society for Neuronal Regulation. *Journal of Neurotherapy*, 8(1), 5–26.
- La Vaque, T. J., Hammond, D. C., Trudeau, D., Monastra, V., Perry, J., Lehrer, P., ... Sherman, R. (2002). Template for developing guidelines for the evaluation of the clinical efficacy of psychophysiological interventions. *Journal of Neurotherapy*, 6(4), 11–23.
- Lubar, J. F., & Shouse, M. N. (1976). EEG and behavioral changes in a hyperactive child concurrent with training of the sensorimotor rhythm (SMR): A preliminary report. *Biofeedback & Self-Regulation*, 1, 293–306.
- Lubar, J. F., & Shouse, M. N. (1977). Use of biofeedback in the treatment of seizure disorders and hyperactivity. *Advances in Clinical Child Psychology*, 1, 204–251.
- Sokhadze, E. M., Cannon R.L., & Trudeau D. L. (2008). EEG biofeedback as a treatment for substance use disorders: Review, rating of efficacy, and recommendations for further research. *Journal of Neurotherapy*, 12(1), 5–43.
- Todder, D., Levine, J., Dwolatzky, T., & Kaplan, Z. (2010). Case report: Impaired memory and disorientation induced by delta band down-training over the temporal brain regions by neurofeedback treatment. *Journal of Neurotherapy*, 14, 153–155.

APPENDIX 1

Additional Reading

Bennett, B. E., Bricklin, P. M., Harris, E., Knapp, S., VandeCreek, L., & Younggren, J. N. (2006). *Assessing and managing risk in psychological practice: An individualized approach*. Rockville, MD: American Psychological Association Insurance Trust.

Striefel, S. (2000). The role of aspirational ethics and licensing laws in the practice of neurofeedback. *Journal of Neurotherapy*, 4, 43–55.

Striefel, S. (2003). The applications of ethics and law in daily practice. Chapter in M. S. Schwartz & F. Andrasik (Eds.), *Biofeedback: A practitioners guide* (3rd ed., pp. 835–880). New York: Guilford.

Striefel, S. (2004). *Practice guidelines and standards for practitioners of biofeedback and applied psychophysiological services*. Wheat Ridge, CO: Association for Applied Psychophysiology and Biofeedback.