October 30, 2019

Daniel Collins, J.D.
North Carolina Psychology Board
895 State Farm Road
Boone, NC 28607

RE: Proposed changes to North Carolina Psychology Practice Act

Mr. Collins,

We, a group of North Carolina licensed psychologists that practice at Duke University Health System, are writing this letter to provide comment and express significant concern about the proposed changes to the NC Psychology Practice Act listed in the NC Register (Volume 34; Issue 5). As a group, we are doctoral level psychologists who have achieved or are in process of becoming board certified in Clinical Neuropsychology through the American Board of Professional Psychology (ABPP). As you know, these proposed changes eliminate the supervision requirement for Licensed Psychological Associates who have met supervision requirements and achieved a passing score on the EPPP after three years. The purpose of this letter is not to debate the legality or clinical implications of master's level practitioners being independently licensed but to bring light to the fact that **clinical neuropsychology is a specialized profession that requires doctoral-level training and formal post-doctoral fellowship**.

Neuropsychology has been recognized as a distinct area within psychology for decades; the International Neuropsychological Society was formed in 1967. The American Psychological Association recognized Clinical Neuropsychology as a *specialty*, not a proficiency, in 1996. The field has become highly specialized in both the pediatric and adult realms, with established training pathways outlined in the Houston Conference guidelines in 1998 (see enclosure). Since 2005, a formal two-year post-doctoral fellowship has been required to meet the minimum standards for practice and board certification. Although not legally required, board certification in clinical neuropsychology has become the common expectation for individuals working in hospital, government, and private practice settings. In fact, of all specialties recognized by the American Board of Professional Psychology, Clinical Neuropsychology has the most diplomates, even superseding Clinical Psychology. We are **unaware of <u>any</u> state that allows the practice of clinical neuropsychology at the master's level**. It is also important to note that specific guidelines for the practice of neuropsychology were created because neuropsychologists often serve client populations (e.g., Traumatic Brain Injury; Epilepsy; Alzheimer's Disease) who present with different evaluation and treatment needs than populations typically served by psychologists. The practice of this specialty requires mastery of a specific body of knowledge, and diagnostic and therapeutic skillsets.

For this reason, we strongly collectively oppose the proposed revisions as currently written. Specifically, the <u>current</u> version of the NC Practice Act includes the following statement in 21 NCAC 54 .2006 (b):

"The conduct of neuropsychological evaluations by psychological associates requires supervision. Not requiring supervision are neuropsychological screenings which lead to simple behavioral descriptions rather than clinical interpretations, or the administration of rating devices which may be completed by a variety of professional and non-professional observers and are subsequently interpreted by other parties."

The proposed revision removes the language regarding the need for supervision and therefore removes the protection that clinical neuropsychology should not be practiced at the master's level. This ultimately would allow for the independent practice of neuropsychology after three years of supervision. We would like to reiterate that **appropriate training in neuropsychology is <u>not</u> currently achievable in a master's program, and supervision of an LPA by a clinical neuropsychologist is far from sufficient education and training to allow for independent practice.** In addition, we believe that the **<u>practice of neuropsychology by improperly trained individuals poses great harm to the public</u>** (e.g., possible misdiagnosis of life-altering conditions such as Alzheimer's disease or other progressive disorders, poor surgical decisions based on erroneous assessment of risk, etc.) **<u>and also harm to the psychology profession at large</u>. Thus, we strongly advise that any revision to the code include language that <u>precludes</u> independent practice of neuropsychology at the master's level regardless of supervision history.**

Attached at the Houston Conference Training Guidelines as well as neuropsychology practice guidelines developed by the American Academy of Clinical Neuropsychology. We would also encourage you to reach out to the professional board that governs the practice of neuropsychology, The American Board of Clinical Neuropsychology.

Sincerely,

Deborah Koltai Attix, Ph.D., ABPP

Sarah Cook, Ph.D., ABPP

Thomas J. Farrer, Ph.D.

THE HOUSTON CONFERENCE ON SPECIALTY EDUCATION AND TRAINING IN CLINICAL NEUROPSYCHOLOGY

Policy Statement

I. Preamble for conference.

Clinical neuropsychology is a specialty formally recognized by the American Psychological Association (APA) and the Canadian Psychological Association (CPA). Education and training in clinical neuropsychology has evolved along with the development of the specialty itself. Nevertheless, there has been no widely recognized and accepted description of integrated education and training in the specialty of clinical neuropsychology The aim of the Houston Conference was to advance an aspirational, integrated model of specialty training in clinical neuropsychology.

The Conference Planning Committee solicited participant applications by way of an announcement in the APA Monitor and letters to members of the Division of Clinical Neuropsychology (Division 40), the National Academy of Neuropsychology (NAN), and to the directors of training programs at the doctoral, internship, and postdoctoral levels as listed in The Clinical Neuropsychologist (Cripe, 1995). The committee selected a group of 37 clinical neuropsychologists to reflect diversity in practice settings, education and training models, specializations in the field of clinical neuropsychology, levels of seniority, culture, geographic location, and sex. Five additional delegates attended as representatives of the sponsoring neuropsychological organizations (NAN; Division 40; the American Board of Clinical Neuropsychology [ABCN]; the American Academy of Clinical Neuropsychology [AACN]; and the Association of Postdoctoral Programs in Clinical Neuropsychology [APPCN]). These delegates convened in Houston from September 3 through September 7, 1997. This document is the product of their deliberations. [Additional details may be found in the Proceedings of the Houston Conference.]

II. Introduction.

The following document is a description of integrated education and training in the specialty of clinical neuropsychology. It is predicated on the view that the training of the specialist in clinical neuropsychology must be scientist-practitioner based, and may lead to a combined, primarily practice, or primarily academic career.

The scientist-practitioner model (Belar & Perry, 1992) as applied to clinical neuropsychology envisions that all aspects of general neuropsychology and professional education and training should be integrated; this is the "horizontal" dimension of education and training. Integration should begin with doctoral education and should continue through internship and residency education and training; this is the "vertical" dimension of education and training.

This document presents a model of integrated education and training in the specialty of clinical neuropsychology that is both programmatic and competency-based (see Section XV below). This model defines exit criteria and provides tracks and means for obtaining these criteria across all levels of education and training. Exit criteria for the completion of specialty training are met by the end of the residency program. The programmatic level at which these criteria are achieved may vary but not the content.

III. Who is a clinical neuropsychologist?

A clinical neuropsychologist is a professional psychologist trained in the science of brain-behavior relationships. The clinical neuropsychologist specializes in the application of assessment and intervention principles based on the scientific study of human behavior across the lifespan as it relates to normal and abnormal functioning of the central nervous system.

IV. Who should have education and training in the specialty of clinical neuropsychology?

1. Persons who engage in the specialty practice of clinical neuropsychology or supervise the specialty practice of clinical neuropsychology.
2. Persons who call themselves "clinical neuropsychologists" or otherwise designate themselves as engaging in the specialty practice of clinical neuropsychology.

3. Psychologists who engage in educating or supervising trainees in the specialty practice of clinical neuropsychology.

V. Professional and scientific activity.

The clinical neuropsychologist's professional activities are included within the seven core domains delineated in the Petition for the Recognition of a Specialty in Professional Psychology submitted by Division 40 of the APA to the Commission for the Recognition of Specialties and Proficiencies in Professional Psychology (CRSPPP). These core domains are: assessment, intervention, consultation, supervision, research and inquiry, consumer protection, and professional development. The scientific activities of the specialist in clinical neuropsychology can vary widely. The specialist whose professional activities involve diverse cultural, ethnic, and linguistic populations has the knowledge and skills to perform those activities competently and ethically. The essential knowledge and skill competencies for these activities are outlined below.

VI. Knowledge base.

Clinical neuropsychologists possess the following knowledge. This core knowledge may be acquired through multiple pathways, not limited to courses, and may come through other documentable didactic methods.

1. Generic Psychology Core

   A. Statistics and methodology
   B. Learning, cognition and perception
   C. Social psychology and personality
   D. Biological basis of behavior
   E. Life span development
   F. History
   G. Cultural and individual differences and diversity

2. Generic Clinical Core
   A. Psychopathology
   B. Psychometric theory
   C. Interview and assessment techniques
   D. Intervention techniques
   E. Professional ethics

3. Foundations for the study of brain-behavior relationships

   A. Functional neuroanatomy
   B. Neurological and related disorders including their etiology, pathology, course and treatment
   C. Non-neurologic conditions affecting CNS functioning
   D. Neuroimaging and other neurodiagnostic techniques
   E. Neurochemistry of behavior (e.g., psychopharmacology)
   F. Neuropsychology of behavior

4. Foundations for the practice of clinical neuropsychology

   A. Specialized neuropsychological assessment techniques
   B. Specialized neuropsychological intervention techniques
   C. Research design and analysis in neuropsychology
   D. Professional issues and ethics in neuropsychology
   E. Practical implications of neuropsychological conditions

VII. Skills.

Clinical neuropsychologists possess the following generic clinical skills and skills in clinical neuropsychology. These core skills may be acquired through multiple pathways, not limited to courses, and may come through other documentable didactic methods. Domains of skills and examples are:

1. Assessment
    - Information gathering
    - History taking
    - Selection of tests and measures
    - Administration of tests and measures
    - Interpretation and diagnosis
    - Treatment planning
    - Report writing
    - Provision of feedback
    - Recognition of multicultural issues
2. Treatment and Interventions
    - Identification of intervention targets
    - Specification of intervention needs
    - Formulation of an intervention plan
    - Implementation of the plan
    - Monitoring and adjustment to the plan as needed
    - Assessment of the outcome
    - Recognition of multicultural issues
3. Consultation (patients, families, medical colleagues, agencies, etc.)
    - Effective basic communication (e.g. listening, explaining, negotiating)
    - Determination and clarification of referral issues
    - Education of referral sources regarding neuropsychological services (strengths and limitations)
    - Communication of evaluation results and recommendations
    - Education of patients and families regarding services and disorder(s)
4. Research
    - Selection of appropriate research topics
    - Review of relevant literature
    - Design of research
    - Execution of research
    - Monitoring of progress
    - Evaluation of outcome
    - Communication of results
5. Teaching and Supervision
    - Methods of effective teaching
    - Plan and design of courses and curriculums
    - Use of effective educational technologies
    - Use of effective supervision methodologies (assessment, intervention, and research)
    - It is recognized that the relative weightings of these dimensions may vary from one program to another.

VIII. Doctoral education in clinical neuropsychology.

Specialization in clinical neuropsychology begins at the doctoral level which provides the generic psychology and clinical core. In addition, it includes foundations for the study of brain-behavior relations and the practice of clinical neuropsychology. All of these are specified above in Sections VI and VII.

Doctoral education in clinical neuropsychology occurs at a regionally accredited institution. All basic aspects of the generic psychology and generic clinical cores should be completed at the doctoral level. The foundation of brain-behavior relationships should be developed to a considerable degree at this level of training. Yet, variability may occur between doctoral programs in the degree to which foundations of brain-behavior relationships and clinical neuropsychology practice are emphasized.

Entry and exit criteria for this level are those specified by the doctoral program.

IX. Internship training in clinical neuropsychology.

The purpose of the internship is to complete training in the general practice of professional psychology and extend specialty preparation in science and professional practice in clinical neuropsychology. The percentage of time in clinical neuropsychology should be determined by the training needs of the individual intern.

Internships must be completed in an APA or CPA approved professional psychology training program. Internship entry requirements are the completion of all graduate education and training requirements including the completion of the doctoral dissertation.

X. Residency education and training in clinical neuropsychology.

Residency education and training is designed to provide clinical, didactic and academic training to produce an advanced level of competence in the specialty of clinical neuropsychology and to complete the education and training necessary for independent practice in the specialty. The postdoctoral residency program is a required component in specialty education in clinical neuropsychology. The expected period of residency extends for the equivalent of two years of full-time education and training. The residency experience must occur on at least a half-time basis.

These programs will pursue accreditation supporting the following assurances.

1. The faculty is comprised of a board-certified clinical neuropsychologist and other professional psychologists;
2. Training is provided at a fixed site or on formally affiliated and geographically proximate training sites, with primarily on-site supervision;
3. There is access to clinical services and training programs in medical specialties and allied professions;
4. There are interactions with other residents in medical specialties and allied professions, if not other residents in clinical neuropsychology;
5. Each resident spends significant percentages of time in clinical service, and clinical research, and educational activities, appropriate to the individual resident's training needs.

Entry into a clinical neuropsychology residency program should be based upon completion of an APA or CPA accredited doctoral education and training program. Clinical neuropsychology residents will have successfully completed an APA or CPA accredited internship program which includes some training in clinical neuropsychology.

Exit criteria for the residency are as follows:

1. Advanced skill in the neuropsychological evaluation, treatment and consultation to patients and professionals sufficient to practice on an independent basis;
2. Advanced understanding of brain-behavior relationships;
3. Scholarly activity, e.g., submission of a study or literature review for publication, presentation, submission of a grant proposal or outcome assessment.
4. A formal evaluation of competency in the exit criteria 1 through 3 shall occur in the residency program.
5. Eligibility for state or provincial licensure or certification for the independent practice of psychology.
6. Eligibility for board certification in clinical neuropsychology by the American Board of Professional Psychology.

XI. Nature and Place of subspecialties within clinical neuropsychology.

In the future, subspecialties in clinical neuropsychology may be recognized (e.g., child, pediatric, geriatric, rehabilitation). In fact, many clinical neuropsychologists currently concentrate their professional and scientific activities in relatively focused areas of the clinical neuropsychology specialty. Thus, it is expected that some or all of these areas of concentration will eventually be seen as bona fide subspecialties. One implication of this view is that residencies may emerge that reflect concentrations in these subspecialties.

XII. Continuing education in clinical neuropsychology.

All specialists in clinical neuropsychology are expected to engage in annual continuing education. The goal of continuing education is to enhance or maintain the already established competence of clinical neuropsychologists by updating previously acquired knowledge and skills or by acquiring new knowledge or skills. Continuing education is not a method for acquiring core knowledge or skills to practice clinical neuropsychology or identify oneself as a clinical neuropsychologist. Continuing education also should not

be the primary vehicle for career changes from another specialty area in psychology to clinical neuropsychology.

XIII. Diversity in education and training.

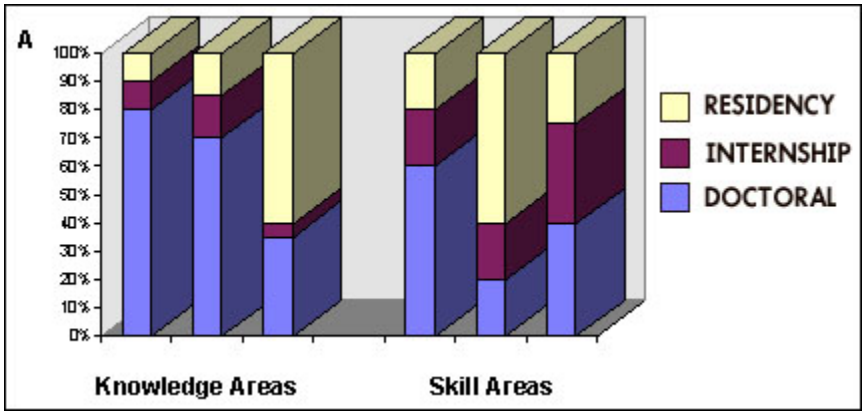
The specialty of clinical neuropsychology should attempt to actively involve (enroll, recruit) individuals from diverse backgrounds at all levels of education and training in clinical neuropsychology.

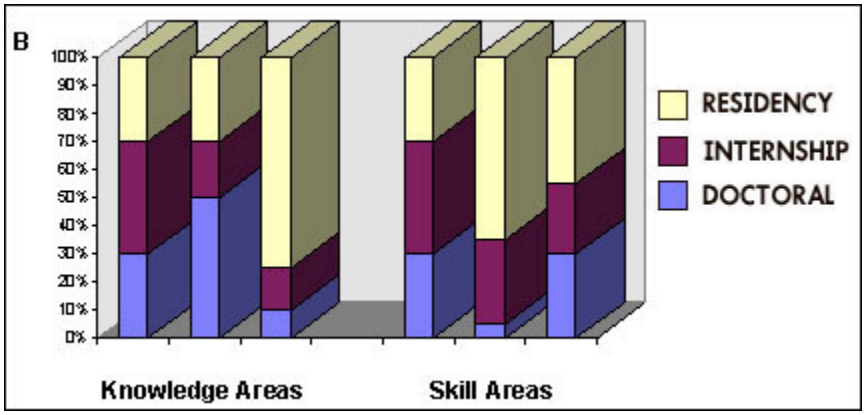
XIV. Application of the model.

This document is not to be applied retroactively to individuals currently trained or in training in the specialty of clinical neuropsychology. Individuals entering the specialty or training for the specialty of clinical neuropsychology prior to the implementation of this document are governed by existing standards as to the appropriateness of identifying themselves as clinical neuropsychologists.

XV. Model of Integrated Education and Training in Clinical Neuropsychology.

Figure 1 demonstrates how different degrees of specialty knowledge and skills (horizontal dimension) are acquired at various levels of training (vertical dimension). The model facilitates longitudinal integration and continuity in knowledge and skill acquisition with an emphasis that will vary according to level of training. The two charts show the education and training sequence for (A) an individual who acquires some of these areas primarily at the doctoral level and (B) an individual who acquires some of these areas to a lesser degree at the doctoral level and much greater degree at the internship and residency levels.





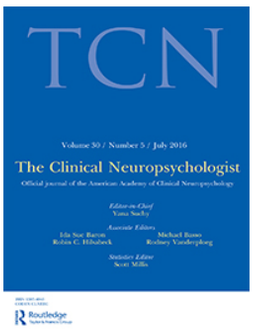
An illustration of an integrated model of education and training in clinical neuropsychology.

From: Hannay, H. J., Bieliauskas, L. A., Crosson, B. A., Hammeke, T. A., Hamsher, K. deS., & Koffler, S. P. (1998). Proceedings: The Houston Conference on Specialty Education and Training in Clinical Neuropsychology. Archives of Clinical Neuropsychology, 13(2).

References

Cripe, L. L. (1995). Special Division 40 presentation: Listing of Training Programs in Clinical Neuropsychology - 1995. The Clinical Neuropsychologist, 9, 327-398.

Belar, C. D., & Perry, N. W. (1992). National Conference on Scientist-Practitioner Education and Training for the Professional Practice of Psychology. American Psychologist, 47, 71-75.



The Clinical Neuropsychologist

ISSN: 1385-4046 (Print) 1744-4144 (Online) Journal homepage: https://www.tandfonline.com/loi/ntcn20

American Academy of Clinical Neuropsychology (AACN) Practice Guidelines for Neuropsychological Assessment and Consultation

Board of Directors

To cite this article: Board of Directors (2007) American Academy of Clinical Neuropsychology (AACN) Practice Guidelines for Neuropsychological Assessment and Consultation, The Clinical Neuropsychologist, 21:2, 209-231, DOI: 10.1080/13825580601025932

To link to this article: https://doi.org/10.1080/13825580601025932

The Clinical Neuropsychologist, 21: 209–231, 2007
http://www.psypress.com/tcn
ISSN: 1385-4046 print/1744-4144 online
DOI: 10.1080/13825580601025932

Psychology Press
Taylor & Francis Group

AMERICAN ACADEMY OF CLINICAL NEUROPSYCHOLOGY (AACN) PRACTICE GUIDELINES FOR NEUROPSYCHOLOGICAL ASSESSMENT AND CONSULTATION

Board of Directors
American Academy of Clinical Neuropsychology

This document is the first set of practice guidelines to be formally reviewed and endorsed by the AACN Board of Directors and published in the official journal of AACN. They have been formulated with the assumption that guidelines and standards for neuropsychological assessment and consultation are essential to professional development. As such, they are intended to facilitate the continued systematic growth of the profession of clinical neuropsychology, and to help assure a high level of professional practice. These guidelines are offered to serve members of AACN, as well as the field of clinical neuropsychology as a whole.

INTRODUCTION

Clinical neuropsychology has experienced tremendous growth in recent years, whether measured in terms of the number of practitioners, scientific studies, meetings, journals, training programs, or assessment tools. Organizations devoted to neuropsychology have formed and have become well established, yet are still maturing. Within the American Psychological Association (APA), the Division of Clinical Neuropsychology (Division 40) was formed in 1980 and clinical neuropsychology was recognized as a specialty in 1996. Definitions of "neuropsychology" and core training requirements have been developed (Hannay et al., 1998) and a number of general approaches to performing valid and appropriate neuropsychological assessment are recognized as having common core features (cf. Lezak, Howieson, & Loring, 2004).

Identification of professional issues and explication of standards is essential to providing quality neuropsychological services to the public and to developing neuropsychology as a science and clinical specialty. Development of guidelines for neuropsychological assessment is the next logical step in the growth, development, and maturation of the field of clinical neuropsychology. In the era of evidence-based practice in psychology (EBPP), such guidelines should be "... based on careful

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Accepted for publication: September 22, 2006. First published online: January 8, 2007.

systematic weighing of research data and clinical expertise'' (APA, 2006). The present document is founded on the assumptions that standards for neuropsychological assessment and consultation are essential to professional development and protection of the public, and that such standards can be articulated as general aspirational guidelines despite theoretical and practical diversity within the field (APA, 2005). Consistent with its mission, the American Academy of Clinical Neuropsychology (AACN) is in a position to take on this responsibility. The present Guidelines are offered to serve members of AACN, as well as the profession of neuropsychology as a whole.

The American Board of Clinical Neuropsychology (ABCN) is a member specialty examining board under a unitary governing body, the American Board of Professional Psychology (ABPP). Founded in 1947, ABPP is the oldest peer-reviewed board for psychology and grants board certification in several specialty areas of psychology, including clinical neuropsychology. Within ABPP, ABCN is responsible for the examination process for clinical neuropsychology board certification candidates, with AACN being the membership organization for individuals who have been awarded board certification by ABCN. Inherent in this examination process are de facto and consensually accepted standards for training, knowledge, and clinical practice in neuropsychology (updated policy and procedures are available online at http://www.theabcn.org).

This document is intended to serve as a guide for the practice of neuropsychological assessment and consultation and is designed to promote quality and consistency in neuropsychological evaluations. Psychologists may use these Guidelines to evaluate their own readiness to perform neuropsychological evaluations and as a framework for performing this type of work. Psychologists who desire to upgrade skills, knowledge, and experience may also use these Guidelines as a reference. Other organizations, disciplines, professionals, entities, and individuals are encouraged to consider these Guidelines as principles for the provision of neuropsychological services. Because they apply to the current practice of clinical neuropsychology, these Guidelines will require periodic review and are intended to remain in effect until a point in time at which the AACN Board of Directors (BOD) determines that a revision is necessary.

The present Guidelines are intended to be compatible with the current APA (2002b) Ethical Principles of Psychologists and Code of Conduct (EPPCC) and follow the recommendations of other APA documents, including the Criteria for Practice Guideline Development and Evaluation (2002a) and Determination and Documentation of the Need for Practice Guidelines (2005). The EPPCC are intended to describe standards for competent and adequate professional conduct. In contrast to applicable codes of ethics, the present Guidelines are intended to describe the *most desirable and highest level professional conduct* for neuropsychologists when engaged in the practice of clinical neuropsychology. In the event of a conflict, the EPPCC or other AACN policy statements can inform the practical use of these Guidelines. Similarly, applicable federal and state laws supersede these guidelines.

The term ''guidelines'' refers to statements that suggest or recommend specific professional behavior, endeavors, or conduct for psychologists. The primary purpose of practice guidelines is to promote high-quality psychological services by providing the practitioner with well-supported practical guidance and education in a particular

practice area. Practice guidelines also "inform psychologists, the public, and other interested parties regarding desirable professional conduct" (APA, 2005). Guidelines differ from "standards" in that standards are mandatory and may be accompanied by an enforcement mechanism, whereas guidelines are aspirational in intent. Guidelines are intended to facilitate the continued systematic development of the profession and to help assure a high level of professional practice (APA, 2005). They are not intended to be mandatory or exhaustive, and may not be applicable to every professional and clinical situation. They are not to be promulgated as a means of establishing the identity of a group or specialty area of psychology. Likewise, they are not created with the purpose of excluding any psychologist from practicing in a particular area, nor are they intended to take precedence over a psychologist's judgment.

OUTLINE OF THE GUIDELINES

1. Definitions
2. Purpose and Scope
3. Education and Training
4. Work Settings
5. Ethical and Clinical Issues
    A. Informed consent
    B. Patient issues in third-party assessments
    C. Test security
    D. Underserved populations/cultural issues
6. Methods and Procedures
    A. The decision to evaluate
    B. Review of records
    C. Interview of patient and significant others
    D. Measurement procedures
    E. Assessment of motivation and effort
    F. Assessment of concurrent validity
    G. Test administration and scoring
    H. Interpretation
    I. The evaluation report
    J. Providing feedback

1. DEFINITIONS

Clinical neuropsychology has been defined as "an applied science concerned with the behavioral expression of brain function and dysfunction" (Lezak et al., 2004). Vanderploeg (2000) noted that neuropsychology studies "the impact of brain injury or disease on the cognitive, sensorimotor, emotional, and general adaptive capacities of the individual." In a similar vein, Prigatano (2002) offered that neuropsychology is "the scientific study of how the brain produces mind and how disorders of the brain cause a variety of mental and personality disturbances." Integrating these statements, *clinical neuropsychology is an applied science that examines the impact of both normal and abnormal brain functioning on a broad range of cognitive, emotional, and behavioral functions*. The distinctive features of neuropsychological

evaluations and consultations in assessing brain function and dysfunction include the use of objective neuropsychological tests, systematic behavioral observations, and interpretation of the findings based on knowledge of the neuropsychological manifestations of brain-related conditions. Where appropriate, these evaluations consider neuroimaging and other neurodiagnostic studies and inform neuropsychologically oriented rehabilitation interventions.

2. PURPOSE AND SCOPE

Clinical neuropsychologists conduct their professional activities in accord with the EPPCC (APA, 2002b), and any AACN position statements that apply to particular issues or areas of practice that are relevant to their professional activities. They are also aware of and may seek guidance from the standards of practice and principles of other relevant professional organizations (e.g., American Academy of Forensic Psychology, American Academy of Pediatrics).

While the professional standards for the ethical practice of psychology are addressed in the EPPCC, these principles are not fully inclusive with respect to the current aspirations of desirable professional conduct for clinical neuropsychologists. By design, none of the present Guidelines contradicts any of the principles of the EPPCC; rather, they exemplify those principles in the context of the practice of clinical neuropsychology, as herein defined. The Guidelines have been designed to be national in scope and are intended to conform to applicable state and federal law. In situations in which the clinical neuropsychologist believes that the requirements of law are in conflict with these Guidelines, attempts to resolve the conflict should be made in accordance with the procedures set forth in the EPPCC.

The present Guidelines specify the nature of desirable professional practice by clinical neuropsychologists within any sub-discipline of this specialty (e.g., child, forensic). The term ''psychologist'' designates any individual whose professional activities are defined by APA and by regulation of title by state registration or licensure, as the practice of psychology. ''Clinical neuropsychologist'' refers to psychologists who engage in the practice of clinical neuropsychology as defined above.

3. EDUCATION AND TRAINING

Early in the development of the field of clinical neuropsychology, neuropsychologists were in limited demand, and there were few formal training programs. By 1979, the International Neuropsychological Society (INS) had published broad guidelines indicating alternative pathways for obtaining competence in this discipline (Rourke & Murji, 2000). At one point, a formal re-specialization program of continuing education was suggested as one means of helping psychologists gain the necessary skills to practice neuropsychology. Continuing education, however, is only intended to expand or elaborate on established skills and is not regarded as an adequate modality for establishing competence in neuropsychology (Bornstein, 1988a). Formal training programs are now widely available (Cripe, 2000; Donders, 2002), and the nature of specialized neuropsychological training has been defined (Bornstein, 1988b; Hannay et al., 1998) and is the basis for the Guidelines proposed herein.

As evident from the definition of *neuropsychology*, a neuropsychologist possesses skills beyond simply administering and scoring a particular set of tests (Matarazzo, 1990; Meyer et al., 2001). A neuropsychologist is "a professional psychologist trained in the science of brain-behavior relationships" (Hannay et al., 1998). Kane, Goldstein, and Parsons (1989) pointed out that "the unique competence of the neuropsychologist is that of conceptualizing assessment results within a brain-behavior framework." The prefix "neuro" in neuropsychologist means that the psychologist is a specialist who has had explicit training in neuroscience and neurological bases of behavior. To fulfill this role, neuropsychologists must have specialized knowledge and training, a fact that is incorporated into the existing definitions of a neuropsychologist (Barth et al., 2003; Bieliauskas, 1999). Both APA Division 40 (Clinical Neuropsychology) and the National Academy of Neuropsychology (NAN) definitions require 2 years of specialized training. The APA Division 40 definition requires formal university training in neuropsychology and the neurosciences, and recommends a peer review process as an indicator of competency. The NAN definition (National Academy of Neuropsychology, 2001) requires, for individuals receiving training after 2001, "the equivalent of two (fulltime) years of experience and specialized training, at least one of which is at the post-doctoral level, in the study and practice of clinical neuropsychology and related neurosciences. These two years include supervision by a clinical neuropsychologist."

4. WORK SETTINGS

Clinical neuropsychologists comprise a relatively small group compared with other specialists in the healthcare marketplace. Indeed, according to recent SAMHSA Mental Health Information Center statistics (http://www.mentalhealth.samhsa.gov/publications/allpubs/SMA01-3537/chapter20.asp), there are over 77,000 licensed doctoral-level psychologists in the United States. At present, there are roughly 4,000 individuals purporting to practice clinical neuropsychology in the United States as reflected by membership in APA Division 40. This is a small number relative to other organizations including the 7,000 members of Division 12 (Clinical Psychology) of APA, 17,000 members of the American Academy of Neurology (AAN), and over 150,000 members of APA. Nonetheless, from the beginning of its development in the United States in the 1950s and 1960s, clinical neuropsychology has flourished as a discipline because of its unique focus and clinical utility.

The settings in which clinical neuropsychologists practice are richly varied. To illustrate, a neuropsychological text edited by Lamberty, Courtney, and Heilbronner (2003) includes chapters from practitioners who work in independent practice, collaborate with physicians in a medical practice, forensic settings (e.g., civil and correctional), or have adult and child practices in rural or urban communities, university-affiliated medical centers, university-based attention deficit-hyperactivity disorder (ADHD) and learning disorder clinics, Veterans Affairs medical centers, general hospital settings, medical rehabilitation units, or schools. Other practice environments include military bases, pharmaceutical companies, surgical centers, and practices in which patients for social security and disability benefits are evaluated (Sweet, Peck, Abramowitz, & Etzweiler, 2000). Neuropsychologists have established themselves

and the utility of neuropsychology as a specialty practice, in a number of medical, legal, social service, and other professional settings (Prigatano & Pliskin, 2003).

5. ETHICAL AND CLINICAL ISSUES

The following section identifies four ethical and clinical issues that are particularly relevant to the practice of clinical neuropsychology and to the development of these guidelines. However, many other practice-related issues, such as effects of third-party observers and the use of psychometricians, are not covered. The reader is referred to relevant AACN position papers or documents from other membership organizations for discussion of these and other issues (see www.theaacn.org and www.nanonline.org).

A. Informed Consent

Neuropsychologists are aware of, and sensitive to, ethical and legal issues of informed consent, confidentiality, autonomy, and related human rights that arise in the context of evaluating children and adults. This is also true for ''vulnerable adults,'' such as patients with mental retardation, developmental disabilities, or dementia, including those who already have designated legal guardians. The limits of confidentiality are explained to all examinees (or to parents or guardians, when appropriate) at the outset of a neuropsychological evaluation. The neuropsychologist establishes a clear understanding of examiner–examinee relationship issues, and ensures that this understanding is shared with the examinee and, if necessary, with relevant third parties, such as a referring physician, social worker, special education administrator, or attorney, and in some cases with insurers (Johnson-Greene & NAN Policy & Planning Committee, 2005). Consideration of such relationships is critical in identifying the person legally entitled to consent to the evaluation and to a release of information about the examinee. The following questions might be asked in these situations: For a patient with dementia or mental retardation, is there a court-appointed guardian? For a child, if the parents are divorced, who has legal custody to give consent for the evaluation and who has a right to receive full disclosure of the findings?

B. Patient Issues in Third-Party Assessments

Neuropsychologists may evaluate someone at the request of a third party (e.g., insurance carrier, attorney, judge, or special education hearing officer), as part of a legal proceeding, a disability evaluation, or special education due process hearings. In such cases, the neuropsychologist clarifies the nature of the relationship with the referring third party by establishing that the neuropsychologist will provide a candid and objective opinion based on the evaluation results (Bush & NAN Policy & Planning Committee, 2005a). In a legal dispute, such an opinion is offered regardless of whether the referral comes from someone advocating for the examinee or for a different party.

At the outset of the evaluation, the neuropsychologist establishes the aims of the assessment, describes in clear language the sorts of information requested of the patient and types of testing procedures to be performed, the general information-gathering procedures to be followed (e.g., whether the evaluation will involve

formal standardized testing, interview, observation in the office, observations in natural settings such as school, home, or daycare, or collection of information from collateral sources where deemed appropriate, such as care providers, teachers, health aides, parents, spouse), the means of providing feedback (e.g., oral and/or written), and to whom and when a neuropsychological report will be sent. The neuropsychologist and referring parties discuss in advance who will pay for the evaluation, what costs are anticipated, and what payment arrangements can be made. In the case of a third-party referral, the neuropsychologist explains to the examinee (or guardians) that the party requesting the evaluation, rather than the patient being evaluated, is considered the ''client,'' at least in the sense that it is this party that will receive the evaluation findings and report. The examinee is helped to understand that his/her responses, and the neuropsychologist's opinions about him/her, will be shared with the referring party, and that the referring party will decide how to use the information (e.g., whether it will be given to opposing attorneys, read aloud in court, etc.). The information from the examination may also be used in future or separate legal or administrative proceedings. The examinee is entitled to decline to participate, but the neuropsychologist should advise him/her to consult with his/her attorney or agent to clarify the possible consequences of consenting, or refusing, to be evaluated. Written reports, in these circumstances, clearly avoid the implication of patienthood or ongoing treatment and identify the examinee as distinct from the name and social/legal identity of the referral source.

In forensic cases, neuropsychologists are careful to distinguish between the role of an ''expert'' and the role of a ''clinician.'' The expert's role is to inform the attorney(s), as well as the ''trier of fact'' (e.g., a judge, jury, or hearing officer) of the neuropsychological findings and to present unbiased opinions and answers to specific questions pertinent to the case, based on relevant scientific and clinical evidence (i.e., to be an ''advocate of the facts'') of the case. In contrast, the treating clinician's role is to be an advocate for his/her patient. Taking on the role of a patient advocate in a forensic situation might be perceived as biasing the clinician's opinions in favor of the patient. The neuropsychologist acting as a forensic expert typically does not conduct a feedback and treatment-planning conference with examinees (or their representative). A neuropsychologist who has treated a patient generally will decline to serve as an expert with regard to that case. If called upon to testify, the treating clinician responds in a manner consistent with original role limitations and qualifies his/her role when answering questions about the patient.

Neuropsychologists may provide a ''second opinion'' based on a review of another neuropsychologist's report, at the request of a judge or an attorney, an insurance company, or another psychologist. In this situation, the neuropsychologist is careful to base such an opinion only on available data and to express caution when lacking the information to provide a more substantive basis for their opinion(s). For example, the neuropsychologist may not be certain about the quality of examiner–examinee rapport or the accuracy of test administration procedures for the evaluation under review, or may find it difficult to form opinions based on the tests administered. Therefore, the ''second opinion'' might be limited to statements regarding whether or not the other examiner chose appropriate tests, reported the scores accurately, and made inferences, conclusions, and recommendations that are supported by the data provided in the report; whether alternative conclusions

or recommendations, not mentioned in the report, should be considered; and whether any further neuropsychological tests or other information gathering (e.g., medical examinations) should be carried out to answer questions relevant to the case.

C. Test Security

Appropriate test security is the assumed responsibility of any practicing neuropsychologist and reflects several different levels for maintaining the safekeeping and utility of any test. Likewise, how the test results are disseminated to patients also falls under the guidelines for test security (NAN, 2000c) and for copyright protection. It is inappropriate and unethical to make copies of actual tests for patients or other parties as a means of providing feedback on assessment findings (EPPCC; APA, 2002b). Because of the time and expense in properly standardizing psychological and neuropsychological instruments, the clinician is entrusted to safeguard and protect the proprietary aspects of such tests to the fullest degree possible. Test publishers routinely include a section on their recommendations for test security and these should be strictly followed in the best manner possible by each clinician. Unique pressures may arise in certain forensic settings, but again the responsibility of the clinician is to maintain the integrity and security of test materials as far as the law and practice guidelines of psychology apply in the relevant jurisdiction(s) of service or practice. In particular, neuropsychologists are aware of the EPPCC and federal, state, provincial, or local policies that govern the content, security, and release of psychological and neuropsychological reports, test protocols, and raw test data or responses, including mandates from state boards of psychology, the Health Insurance Portability and Accountability Act (HIPAA) and the Centers for Medicare and Medicaid Services (CMS).

D. Underserved Populations/Cultural Issues

The present guidelines augment the ''cultural competence'' provisions of the EPPCC by defining the issues to be considered and recommending some specific competencies for the neuropsychological evaluation of individuals belonging to minority and underserved populations. Consistent with these provisions, neuropsychologists are aware that cultural, linguistic, disability, and other demographic and socioeconomic factors influence individuals' participation in the process of neuropsychological assessment, and may alter the meaning of the information obtained from testing (see, for example, Artiola i Fortuny et al., 2005; Brauer, 1993; Cohen, Mounty, & Martin, 2005; Manly et al., 1998; Mason, 2005; Ortiz, 2001; Perez-Arce & Puente, 1998; Vernon, 2005; Wong & Fujii, 2004). Neuropsychologists are also aware of the risks inherent in administering and interpreting tests with individuals from groups for whom there are insufficient or limited test adaptations, normative data, or validity studies (see Artiola i Fortuny, Heaton, & Hermosillo, 1998; Manly, 2005). These groups include individuals with unusually low levels of education (in the United States or elsewhere), those whose primary language is other than English and who belong to distinctive cultural or sociodemographic groups, and those with physical or mental disabilities that limit the ability to participate meaningfully in the examination as originally intended.

Neuropsychologists who agree to evaluate members of special populations are specifically educated about issues and have experience in administering and interpreting procedures relevant to the patient in question (Echemendia & Westerveld, 2006; Hauser, Wills, & Isquith, 2006; Ortiz, 2001; Vernon, 2005; Wong & Fujii, 2004). Alternatively, neuropsychologists show (1) that they have sought a local colleague better qualified to accomplish the task, (2) that the potential harm to the patient of deferring or declining the referral has been assessed and is considered to outweigh the potential dangers of proceeding with an evaluation, notwithstanding acknowledged limitations in the neuropsychologist's population-specific competencies, and (3) that they have attempted to ameliorate or compensate for all such limitations by consulting appropriate colleagues and research literature.

Neuropsychologists describe in their report how well they have communicated with the patient, their own level of fluency in the patient's language, and their uncertainty about the fidelity of interpreter-mediated translation and quality of interpersonal communication, including not only literal content, but also culturally mediated meanings, affective tone, and nonverbal "body language." They further note the inevitable effects of using an interpreter on the validity of the test results and interview data (Dean & Pollard, 2005; Glickman & Gulati, 2003; Harvey, Artiola i Fortuny, Vester-Blockland, & De Smedt, 2003; Hindley, Hill, & Bond, 1993; Marcos, 1979). Interpreters are employed in a manner that respects the patient's autonomy and competence (Artiola i Fortuny et al., 2005; Cohen et al., 2005; Dean & Pollard, 2005). Neuropsychologists avoid using family members, friends, or other untrained individuals as interpreters, whenever possible, to preserve patient confidentiality and autonomy as well as to optimize the fidelity of translation.

Neuropsychologists recognize the threats to validity that can occur with the introduction of cultural bias in both translated and adapted instruments. These threats may occur at three levels: item, method, and construct (Van de Vijver & Hambleton, 1996). When working with populations for whom tests have not been standardized and normed, neuropsychologists place particular emphasis on using direct observation and relevant supplementary information about a patient's adaptive functioning within his or her "real-world" community. They may employ assessment strategies that do not require a standardized normative approach, including, but not limited to, direct observation, charting of behavioral changes over time, criterion-referenced testing, direct comparisons with a group of demographically similar peers, or comparison with demographically similar groups in published research studies (Manly, 2005; Simeonsson & Rosenthal, 2001).

6. METHODS AND PROCEDURES

A. The Decision to Evaluate

Before initiating neuropsychological testing, the neuropsychologist clarifies the referral source and the referral questions, determines that he or she is competent to evaluate the patient and answer the referral question(s), concludes that it is ethically acceptable to do so, and decides that a neuropsychological evaluation is pertinent to the issues raised. Otherwise, the neuropsychologist contacts the referral source and discusses whether some other type of evaluation may be better to address the referral

questions, such as a psychodiagnostic evaluation, functional behavior assessment, clinical interview, psychiatric evaluation or other medical assessment. Alternatively, the neuropsychologist suggests that the evaluation may be more appropriately conducted by a different neuropsychologist owing to conflict of interest or the fit of the patient's needs to the neuropsychologist's clinical competencies or cultural or language expertise.

B. Review of Records

Having access to information from sources other than the patient and their family members usually allows for a more comprehensive neuropsychological evaluation. Memories may be inaccurate or historical reports distorted, previous information may have been misunderstood or pieced together from the recollections of others, or patients simply may not know important facts. When conducting a comprehensive evaluation, the neuropsychologist attempts to obtain relevant background information from written records whenever possible. By gathering historical information, the neuropsychologist may improve diagnostic predictive accuracy, better describe cognitive and behavioral functioning, and assist treatment planning. In the case of an injury, medical condition, or neurological event, medical records from emergency personnel, hospitals, and outpatient facilities help to establish facts related to the time frame of the presenting problems, presence or absence of critical medical factors, type and degree of injury or impairment, and circumstances under which problems may have become manifest. Historical information is also relevant in assessing patients with histories of psychiatric illness, developmental disabilities, or learning or attentional disorders, and for whom the time sequence of the problems and interventions used to manage these problems may be important in clinical decision making.

In the case of suspected cognitive changes, an attempt to obtain a patient's earlier medical records is advisable in most cases. Although not a common practice in adult neuropsychological assessment, information gathered from available childhood health records helps to determine if pre-existing difficulties may account, in part, for a patient's current level of functioning. In the evaluation of children, adolescents, and young adults, information contained in the school records often enhances understanding of the child's past and current cognitive and behavioral functioning. Records of school or work histories for adults may be similarly useful in providing information on premorbid level of functioning, but are often unavailable.

The aims of the evaluation typically determine the extent to which the neuropsychologist gathers information from collateral sources. Extensive review of records may be a worthwhile goal in conducting some assessments, but may not be warranted in all cases and will depend on the nature of the referral questions. In many routine clinical scenarios, such as evaluations undertaken to facilitate ongoing medical care, the patient's best interests may be better served when an interpretive report is provided expeditiously, without the delays that often accompany a request to complete a review of external records. Writing a subsequent addendum summarizing a review of obtained records may be considered as a means to supplement information not available at the time of the original report.

Finally, the nature of the questions asked of a neuropsychologist in a forensic evaluation may require a more extensive review of records than is typically required for a clinical evaluation. In a forensic case, the neuropsychologist reviews as much relevant information about the past and present functioning of the patient as can be made available to him/her. Neuropsychologists do not, when conducting an examination for a forensic purpose, assume primary responsibility for the discovery and production of historical records.

C. Interview of Patient and Significant Others

A neuropsychological evaluation consists of more than a review of records and the administration of psychological and neuropsychological tests. Indeed, some information critical to the evaluation may only be available via a patient interview. Information from the patient may enable the clinician to gain perspective on the patient's experience, including self-perceptions of problems and stresses, and to integrate this information with data from other sources (e.g., test results, record reviews, interviews with significant others). In this way, the clinician may come to a more complete understanding of the patient's history and current situation and be better able to apprehend how the patient or examinee views his/her life circumstances.

Neuropsychologists may employ actuarial (i.e., purely data-driven) approaches to understanding and interpreting brain–behavior relationships, including those that focus solely on lateralization and/or localization of brain dysfunction (Russell, Russell, & Hill, 2005). However, a comprehensive neuropsychological evaluation generally entails identification and description of the cognitive and behavioral correlates of brain disease or neurodevelopmental disorder, opinions regarding prognosis, and formulation of treatment plans. A clinical interview and gathering of historical information, often including neuroimaging or other medical findings, is critical to this process.

When interviewing a patient, the neuropsychologist typically considers the events that led to the referral for an evaluation, the duration of the presenting problems or condition, the primary symptoms and changes in symptom presentation over time, the effect of the presenting symptoms or condition on daily functioning, the results of previously conducted tests and procedures, and the patient's strengths and interests. Relevant historical details may include prenatal history, birth and developmental background, educational history (including any history of learning disabilities or weaknesses), work history, current and past medical and psychiatric history, history of alcohol or substance abuse, current and past medications, legal history, and family medical, psychiatric, and substance abuse history.

Although interviewing a family member or friend of the patient is not always possible, doing so may yield useful information not otherwise available. Because of problems with motivation, memory, language, reduced awareness of their illness, or other neurobehavioral symptoms, patients may not always be reliable informants for past or current events. Information from a person who knows the patient and who can talk about the patient's premorbid history, and the effects that the illness/injury has had on the patient and family, can be critical in understanding the functional consequences of the illness/injury. Such individuals may sometimes be the only source of information regarding the onset, clinical course, and magnitude of deficits. However, it is important to communicate to the family or significant other that a

doctor-patient relationship does not exist; thus, issues such as confidentiality, release of records, etc., should be discussed in advance. Whether used in evaluating the patient or to obtain information from other informants, a structured interview can help to reduce bias and ensure thoroughness and consistency across examinations. It may also provide a means for standardizing data collection of potential use in clinical research.

D. Measurement Procedures

Neuropsychological evaluations vary in content depending on their purpose but they typically assess multiple neurocognitive and emotional functions. Primary cognitive domains include: intellectual functions; academic skills (e.g., reading, writing, math); receptive and expressive language skills (e.g., verbal comprehension, fluency, confrontation naming); simple and complex attention; learning and memory (e.g., encoding, recall, recognition); visuospatial abilities; executive functions, problem-solving and reasoning abilities; and sensorimotor skills. Ideally, assessments should also include measures designed to assess personality, social-emotional functioning, and adaptive behavior. In some settings (e.g., testing the acutely medically ill), comprehensive testing may be contra-indicated; in such situations, measurement of selected neurocognitive domains and/or a screening of cognitive skills is preferred. Additional guidelines for test selection can be found in APA's Standards for Educational and Psychological Testing (1999).

Neuropsychological tests and measures used for clinical purposes must meet standards for psychometric adequacy (with exceptions as noted below). These standards include: (1) acceptable levels of reliability, (2) demonstrated validity in relation to other tests and/or to brain status, including evidence that the test or measure assesses the process, ability, or trait it purports to assess, and (3) normative standards that allow the clinician to evaluate the patient's scores in relation to relevant patient characteristics, such as age, gender, and sociodemographic or cultural/linguistic background. In general, tests published with large, stratified normative samples—"Heaton norms" (Heaton, Avitabile, Grant, & Matthews, 1999); Mayo's Older Americans Normative Studies (MOANS; Ivnik et al., 1992, 1996), and Mayo's Older African Americans Normative Studies (MOAANS; Lucas et al., 2005)—provide a sound foundation for accurate interpretation. Comparisons of results from tests that are co-normed are advantageous in examining differences between two or more cognitive domains. The neuropsychologist is aware of the source of normative data and is cautious about using tests for which sample sizes are small or restricted (e.g., by geographic region or sociodemographic characteristics). Sample size considerations are particularly important in child assessments, where developmental changes in skills demand adequate sampling across a variety of ages.

Measures that show promise, but have not met the most rigorous standards, may be considered to assess skills, behaviors, or influences that are deemed important to elucidate patients' or others' concerns. However, these more "provisional" tests and measures are selected to complement rather than replace those with better-established properties. Preliminary evidence for psychometric adequacy is needed even for measures considered provisional in nature; and the neuropsychologist is aware of the level of support for their use in interpreting the findings.

Some common conditions that justify exceptions to the general principles elucidated above include: the need to evaluate an individual whose neuropsychological functioning falls at the extremes of the normal distribution (e.g., those with mental retardation or the exceptionally gifted), individuals with sensory or motor disabilities that require modifications to standardized test administration (e.g., creating a bedside assessment for a patient with neglect following a right hemisphere stroke), and individuals from linguistic or cultural groups for whom no normed test exists. In such cases, the neuropsychologist recognizes the importance of ecologic validity or external "real-world" validation of the test findings and for determining the reliability of the findings across multiple tests. The neuropsychologist also explicitly acknowledges in the report the modifications of test administration and scoring and their potential effect on the validity of the assessment results.

A comprehensive neuropsychological evaluation should be thorough but also efficient and respectful of a patient's time and resources. Some patients, such as those who fatigue easily, may require more than one session. Furthermore, in clinical practice, clinical neuropsychologists often find it necessary and advisable to administer a selected set of subtests instead of the complete test battery or test. An advantage of using multiple tests from single or co-normed test batteries is that patient strengths and weaknesses, including levels or laterality of performance, can be assessed relative to the same normative sample. A further advantage is that administration of test batteries can provide for the assessment of a broad range of functions. Disadvantages include a predetermined number and restricted selection of subtests in the existing test batteries, and associated time constraints, which may preclude administration of complete batteries when given in combination with other measures of interest. Breadth of assessment can be provided by administering multiple individual tests and/or combinations of subtests from different test batteries, depending on the goals of the evaluation. The practice of using selected subtests or individually developed tests can be justified by reference to research literature employing these measures and the availability of appropriate normative standards (e.g., Baron, 2004; Heaton et al., 1999; Lucas et al., 2005; Steinberg & Bieliauskas, 2005).

E. Assessment of Motivation and Effort

A growing literature suggests that the assessment of motivation and effort is critical when conducting a neuropsychological evaluation (Bush & NAN Policy & Planning Committee, 2005b). This area has received the greatest emphasis in forensic assessment, in which symptom magnification, impression management, or even feigning of impairment can occur (Mittenberg, Patton, Canyock, & Condit, 2002). However, the assessment of effort and motivation is important in any clinical setting, as a patient's effort may be compromised even in the absence of any potential or active litigation, compensation, or financial incentives. Approaches for assessing motivation and effort include: behavioral observations from interview or testing of behaviors such as avoidance, resistance, hostility, and lack of cooperation; examination of the pattern of performance among traditional neuropsychological measures; identification of unexpected or unusually slow and/or impaired levels of performance; identification of cognitive profiles that do not fit with known patterns typical of brain disorders; and consideration of suspect performance on objective measures of effort. Clinicians

utilize multiple indicators of effort, including tasks and paradigms validated for this purpose, to ensure that decisions regarding adequacy of effort are based on converging evidence from several sources, rather than depending on a single measure or method.

Neuropsychologists utilize commonsense methods to optimize patient performance, such as attending to the lighting, seating, and other aspects of physical comfort during testing; treating patients respectfully; establishing rapport; asking the patient about his/her understanding and acceptance of the evaluation process; and encouraging and reinforcing effort. The purpose of these methods is to establish a physically and interpersonally comfortable testing environment, with the goal of minimizing anxiety, resistance, physical discomfort, or other factors that may interfere with optimal motivation and effort.

F. Assessment of Concurrent Validity

The neuropsychologist typically draws inferences about a given skill or ability from more than one test or test score, and considers the influences of the patient's state of engagement, arousal, or fatigue on test performance. To illustrate, issues of test validity may be raised when performance on an attention measure early in a test battery is better than performance on another attention task toward the end of the battery. Cultural and language-mediated effects on test performance are also considered, and caution is exercised in administering and interpreting tests to individuals from a demographic, linguistic, or cultural group for which the tests have not been appropriately normed, validated, and translated (see section 5C). The neuropsychologist should be aware of limitations of making comparisons among standard scores arising from different normative samples and should make efforts to include norms that are most similar to the demographics of the patient being examined.

G. Test Administration and Scoring

Standard procedures are followed in test administration and scoring (see *Standards for Educational and Psychological Testing*, APA, 1999). Tests are administered, scored, and interpreted in ways that are consistent with evidence regarding the utility and appropriate application of these methods. The clinician attempts to prevent misuse of the test materials, and to determine and report circumstances in which norms may have limited applicability or test procedures may be inapplicable or require modification (EPPCC). Neuropsychologists may "test limits" (e.g., by changing test demands or providing extra time) to investigate the effects of accommodations on test performance, but findings from such procedures are clearly labeled as such and norms that apply to standard administrations are not used to describe the results. The presence of third-party observers during test administration is also strongly discouraged (AACN, 2001; NAN, 2000a). If a third party or monitoring device is present, the neuropsychologist states how and to what extent this circumstance may have affected the test results.

Accuracy of scoring is essential for appropriate interpretation of test results. The neuropsychologist is familiar with scoring methods and criteria for specific items, procedures for aggregating scores, and the meaning of the scores (i.e., the normative base used for converting raw to standard, or derived scores). Scoring is

performed with care, with double-checking of scores, sums, and conversion tables to ensure accuracy. If novel scoring procedures are used, they should be justified by previous research. Computer scoring programs, because of the "hidden" nature of their operations, are used only if validated against other reliable and previously validated procedures. Neuropsychologists are responsible for the accuracy of scores when a psychometrist or computerized scoring program are utilized (APA, 1992; NAN, 2000b).

H. Interpretation

Accurate interpretation of neuropsychological test data requires extensive relevant training and experience, and knowledge of current empirically based professional opinions gathered from continuing education and the published literature. A neuropsychologist's clinical interpretation of the evaluation findings is based on information regarding the patient's history and problems, direct observation of the patient, levels or patterns of test performance associated with specific clinical presentations, and the current theory and knowledge regarding the neurological and psychosocial/cultural influences on test performance and daily functioning. This interpretation is highly individualized and does not follow a "cookbook" approach. Results from computer scoring and interpretation programs are also considered within the context of the individual patient; the neuropsychologist does not exclusively use automated computer printout interpretation as a substitute for a carefully considered and individually tailored clinical interpretation.

Information about the patient's sociodemographic status, cultural and linguistic background, and work, school, and family characteristics can be obtained through interview or formal measures. These factors are taken into consideration in making judgments as to the extent to which the test performance deviates from expected levels (see section 5C). This information is also useful in determining if environmental or motivational factors are contributing to or exacerbating the patient's problems.

The inferences made by neuropsychologists in interpreting the evaluation findings include judgments regarding: (1) the nature of the cognitive deficits or patterns of strengths and weaknesses, (2) the likely sources of, or contributors to, these deficits or patterns, and (3) their relation to the patient's presenting problems and implications for treatment and prognosis. The first type of inference is based on knowledge of the cognitive constructs measured by neuropsychological tests. Judgments regarding relative strengths and weaknesses also rely on knowledge of expected levels of test performance relative to background patient characteristics or to the patient's performance on other tests (as in making judgments regarding inter-test score discrepancies). In rendering conclusions regarding a patient's strengths and weaknesses, the clinician considers the consistency of findings across multiple tests and alternative explanations for high or low test scores (e.g., development of compensatory test-taking strategies, poor effort) or the overall pattern and profile of neuropsychological test scores.

The second type of inference, regarding causal or contributing factors, relies on knowledge of the cognitive, behavioral, and emotional consequences of brain insults or constitutional-genetic anomalies. If a brain insult or neurodevelopmental

anomaly is *known*, a judgment is made as to whether the insult or anomaly has contributed in some way to the patient's problems. The insult or anomaly may be a primary cause of the problems. In circumstances in which several causal factors are potentially contributory, it may be difficult to conclude with reasonable certainty that a particular event or disease is the primary cause, or to isolate the specific influence of a particular condition on a behavior or learning problem. Inferences regarding causation take into account not only the pattern of the test results, but also the history of the patient's problems, the nature of the potential causal event and its relation to symptom presentation, the strength of research supporting a relation between the type of brain insult or anomaly of the patient and the test findings, the base rate of the problem in the general population, and alternative explanations for the patient's test findings. These same considerations apply if the brain insult or anomaly is *unknown*. In this latter instance, the judgment to be made involves the extent to which the problems are consistent with or suggest the presence, nature, or localization of a neurological abnormality. Inferences in this regard are again based on the degree of consistency of the patient's test results to those of other patients with similar insults or anomalies, the likelihood of a neurological insult or anomaly as having occurred, the patient's history and timing of symptoms in relation to a potential insult or anomaly, and consideration of other possible causes for the patient's problems.

In making judgments regarding brain insult or anomaly as a cause for the patient's presenting problems, co-morbidities, or ability deficits, the neuropsychologist considers factors that may ameliorate or exacerbate these effects. Such moderating variables may include patient behavior and background characteristics, environmental supports or stressors, the effects of various medications, and the patient's current level of cognitive functioning. Environmental and maturational influences on outcomes of brain insult or anomaly are also considered in making judgments regarding causation.

The third type of inference pertains to the validity of neuropsychological test results in identifying and forecasting social-behavioral or learning problems and in predicting responsiveness to different interventions. Test validity in this sense is supported to the extent that the patient's identified deficits, or patterns of strengths and weaknesses, have been related in past research to problems similar to the patient's. Further support for validity comes from studies indicating that specific deficits or patterns of strengths and weaknesses predict other difficulties or future outcomes, or inform treatment for the patient's problems. In drawing conclusions about the relevance of cognitive skills to identification and management of a patient's problems, the neuropsychologist considers the possible contributions of non-cognitive factors (e.g., the effects of pain, sleep disruption, medication effects, psychological distress or history of maladaptive behavior unrelated to the patient's cognitive deficits, social or educational supports).

New technologies for evaluating brain–behavior relationships are emerging, including advances in neuroimaging, genetic analyses, metabolic tests, and other measures that reflect physiological and psychological functions. All of the major areas of clinical psychometric assessment, as defined earlier in these guidelines, are being standardized for research and clinical purposes using an array of neuroimaging methods, such as functional magnetic resonance imaging (fMRI). To illustrate, APA

Division 40 has endorsed the role of neuropsychologists in clinical use of fMRI (APA, 2004). In the coming years, standardized assessment protocols for assessing a broad spectrum of neuropsychiatric and cognitive disorders are likely to be developed wherein clinical neuropsychologists will use neuroimaging as part of their neuropsychological evaluation and assessment.

I. The Evaluation Report

Neuropsychological findings generally are summarized in a written report to be provided to the referral source or responsible party (Axelrod, 1999), except in special circumstances (e.g., certain forensic or research contexts). The EPPCC (APA, 2002b, 6.01: Documentation of Professional and Scientific Work) notes that the written report serves "... to facilitate provision of services later; to ensure accountability; and to meet other requirements of institutions or the law."

Report-writing styles vary with the purpose of the report, background and training of the neuropsychologist, requirements of the work setting, and even, on occasion, the specific guidelines established by the referring party. Neuropsychological evaluations are typically requested for a specific purpose or to answer specific referral questions. The purposes of the assessment may include provision of differential diagnoses, documentation of cognitive strengths and weaknesses, delineation of functional implications of the identified deficits, and recommendations regarding interventions. Generally speaking, the aims of the report are (1) to describe the patient and record the findings, (2) to interpret the patient's performance on tests in light of other assessment information, (3) to answer questions and make judgments regarding the nature and sources of the presenting complaints/concerns, (4) to assess prognosis and make recommendations for future care, and (5) to communicate the results to the patient or significant others with permission, to the referral source, and other service providers such as teachers and therapists (Axelrod, 1999).

Despite the absence of a universally accepted outline or format, the report usually is organized to assist the reader in identifying the patient and learning of the reason for referral and presenting problems, the patient's history and level of functioning, the patient's behavior during the evaluation, the test results, and the clinician's impressions, interpretations, and recommendations. Some of the most commonly used report sections include: Identifying Information and Reason for Referral; Background Information/History; Tests Administered; Behavioral Observations; Test Results/Interpretations; Summary & Conclusions; Diagnostic Impressions; and Recommendations. Consultations or short reports are more annotated versions of the above format, typically consisting of a few paragraphs describing the test results and recommendations. Abbreviated reports are more common when evaluating patients whose background is already known to the referral source (e.g., primary physician) or when the assessment is being conducted for more circumscribed reasons (e.g., to assess cognitive function as part of a multidisciplinary inpatient assessment). Test reports contain information regarding the patient's age, gender, educational level, occupational background, need for special services or accommodations in conducting the assessment, racial identity/ethnicity, the persons who conducted the assessment (neuropsychologist, psychometrist) and others

present during testing (e.g., translator, student trainee), and (as appropriate) the language(s) in which testing was conducted and the examiner's and patient's fluency in the language(s).

One recommended practice in clinical neuropsychology is to include numerical data (including scaled scores or percentile ranks) in reports (Donders, 2001; Friedes, 1993). Neuropsychologists may choose to append test scores in a summary sheet, or insert scores in the report text. Including test scores allows for the comparison of a patient's performance over repeated evaluations, minimizes the need for obtaining multiple releases of information, and increases the efficiency with which raw data can be shared with other professionals for the purpose of further assessment or management of the patient. Inclusion of scores also increases accountability and may even minimize and clarify any interpretation biases or idiosyncrasies on the part of the writer (Matarazzo, 1995). Finally, in certain situations, such as documenting a learning disability or ADHD for higher education, the guidelines issued by testing organizations and used by academic institutions universally require the reporting of test scores (Educational Testing Service (1998a, 1998b). When used in conjunction with scores, use of words describing test scores (e.g., "below average," "impaired") may facilitate understanding of test data.

Multiple normative data sets are available for many neuropsychological instruments, and test score percentiles or standard scores may differ depending on which norms are employed. As appropriate, citations may be provided for the normative sets, which can assist the reader in understanding how specific standard scores were derived. Further, because some test norms allow adjustment for age, while others also correct for additional factors, such as education, gender, and/or ethnicity, some practitioners may choose to specify the demographic characteristics that were considered in deriving norm-based scores (e.g., 10th percentile for age and education; Selnes et al., 1991).

J. Providing Feedback

Although documentation of the results from a neuropsychological evaluation usually takes the form of a written summary or report, feedback is often provided directly (i.e., in a face-to-face meeting or phone call) to referral sources, patients, families, third-party payers, and the legal system. Feedback to clinical referral sources is provided in a timely manner and addresses the relevant referral questions and concerns. The neuropsychologist also makes additional inferences and recommendations as appropriate for the benefit of the patient or referral source. For example, the need for patient counseling or special school placements may be advised, even if questions regarding these matters were not raised by the referral source.

Feedback regarding the evaluation findings and recommendations are provided in a manner that is comprehensible to intended recipients and which respects the well-being, dignity, and rights of the individual examinee. Ethical and legal guidelines pertaining to the provision of feedback should be identified and followed. As noted earlier (section 5B), feedback typically is not given in forensic evaluations, but it is part of most clinical evaluations. The neuropsychologist adheres to professional ethics (EPPCC) and federal, state, and local laws related to the autonomy

and decision-making capacities of patients who are legally competent. When cognitive impairments interfere with the patient's ability to understand the implications of the test results, or in the case of a child examinee, feedback may be provided to a responsible party (legal guardian or parent), with or without the patient present. The neuropsychologist consults with the responsible party to decide whether or not to provide direct feedback to a minor child or vulnerable adult. In some such cases, sensitive and developmentally appropriate discussion of results and recommendations may enhance the person's well-being; in other cases, direct feedback about test findings could be detrimental, particularly if the child or vulnerable adult misconstrues what is said.

REFERENCES

American Academy of Clinical Neuropsychology. (2001). Policy statement on the presence of third party observers in neuropsychological assessments. *The Clinical Neuropsychologist*, *15*, 433–439.

American Psychological Association. (1992). Official position of the division of clinical neuropsychology (APA division 40) regarding the use of nondoctoral personnel for neuropsychological assessment. *The Clinical Neuropsychologist*, *6*, 256.

American Psychological Association. (1999). *Standards for educational and psychological testing*. Washington, DC: APA.

American Psychological Association. (2002a). Criteria for practice guideline development and evaluation. *American Psychologist*, *57*, 1048–1051.

American Psychological Association. (2002b). Ethical principles of psychologists and code of conduct. *American Psychologist*, *57*, 1060–1073.

American Psychological Association. (2004). Official position of the division of clinical neuropsychology (APA division 40) on the role of neuropsychologists in clinical use of fMRI. *The Clinical Neuropsychologist*, *18*, 349–351.

American Psychological Association. (2005). Determination and documentation of the need for practice guidelines. *American Psychologist*, *60*, 976–978.

American Psychological Association. (2006). Evidence-based practice in psychology. *American Psychologist*, *61*, 271–283.

Artiola i Fortuny, L., Garolera, M., Hermosillo Romo, D., Feldman, E., Fernandez Barillas, H., Keefe, R. et al. (2005). Research with Spanish-speaking populations in the United States: Lost in the translation. A commentary and a plea. *Journal of the International Neuropsychological Society*, *27*, 555–564.

Artiola i Fortuny, L., Heaton, R. K., & Hermosillo, D. (1998). Neuropsychological comparisons of Spanish-speaking participants from the U.S.–Mexico border region versus Spain. *Journal of the International Neuropsychological Society*, *4*, 363–379.

Axelrod, B. N. (1999). Neuropsychological report writing. In R. D. Vanderploeg (Ed.), *Clinician's guide to neuropsychological assessment*. Hillsdale, NJ: Lawrence Erlbaum.

Baron, I. S. (2004). *Neuropsychological evaluation of the child.* New York: Oxford University Press.

Barth, J. T., Pliskin, N., Axelrod, B., Faust, D., Fisher, J., Harley, J. P. et al. (2003). Introduction to the NAN 2001 definition of a clinical neuropsychologist. NAN policy and planning committee. *Archives of Clinical Neuropsychology*, *18*, 551–555.

Bieliauskas, L. A. (1999). Mediocrity is no standard: Searching for self-respect in clinical neuropsychology. *The Clinical Neuropsychologist*, *13*, 1–11.

Bornstein, R. A. (1988a). Entry into clinical neuropsychology: Graduate, undergraduate and beyond. *The Clinical Neuropsychologist*, *2*, 213–220.

Bornstein, R. A. (1988b). Reports of the division 40 task force on education, accreditation and credentialing. *The Clinical Neuropsychologist*, *2*, 25–29.

Brauer, B. A. (1993). Adequacy of a translation of the MMPI into American sign language for use with deaf individuals: Linguistic equivalency issues. *Rehabilitation Psychology*, *38*, 247–260.

Bush, S. S. & the NAN Policy & Planning Committee. (2005a). Independent and court-ordered forensic neuropsychological examinations: Official statement of the national academy of neuropsychology. *Archives of Clinical Neuropsychology*, *20*, 997–1007.

Bush, S. S. & the NAN Policy & Planning Committee. (2005b). Symptom validity assessment: Practice issues and medical necessity: Official statement of the national academy of neuropsychology. *Archives of Clinical Neuropsychology*, *20*, 419–426.

Cohen, O., Mounty, J., & Martin, D. (2005). *Assessing Deaf adults: Critical issues in testing and evaluation*. Washington, DC: Gallaudet University Press.

Cripe, L. (2000). Division 40 special presentation: Listing of training programs in clinical neuropsychology–2000. *The Clinical Neuropsychologist*, *14*, 357–448.

Dean, R. & Pollard, R. (2005). Consumers and service effectiveness in interpreting work: A practice profession perspective. In M. Marschark, R. Peterson, & W. Winston (Eds.), *Interpreting and interpreter education: Directions for research and practice* (pp. 259–282). New York: Oxford University Press.

Donders, J. (2001). A survey of report writing by neuropsychologists, II: Test data, report format, and documentlength. *The Clinical Neuropsychologist*, *15*, 150–161.

Donders, J. (2002). Survey of graduates of programs affiliated with the association of postdoctoral programs in clinical neuropsychology (APPCN). *The Clinical Neuropsychologist*, *16*, 413–425.

Echemendia, R. & Westerveld, M. (2006). Cultural considerations in pediatric rehabilitation. In J. Farmer, J. Donders, & S. Warschausky (Eds.), *Treating neurodevelopmental disorders*. New York: Guilford Press.

Educational Testing Service. (1998a). *Policy statement for documentation of a learning disability in adolescents and adults*. Princeton, NJ: ETS.

Educational Testing Service. (1998b). *Policy statement for documentation of attention-deficit/hyperactivity disorder (ADHD) in adolescents and adults*. Princeton, NJ: ETS.

Freides, D. (1993). Proposed standard of professional practice: Neuropsychological reports display all quantitative data. *The Clinical Neuropsychologist*, *7*, 234–235.

Glickman, N. & Gulati, S. (2003). *Mental health care of deaf people: A culturally affirmative approach*. Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Hannay, H. J., Bieliauskas, L. A., Crosson, B. A., Hammeke, T. A., Hamsher, K.deS., & Koffler, S. P. (1998). Proceedings of the Houston Conference on specialty education and training in clinical neuropsychology. *Archives of Clinical Neuropsychology*, *13*, 157–158.

Harvey, P. D., Artiola i Fortuny, L., Vester-Blockland, E., & De Smedt, G. (2003). Cross-national cognitive assessment in schizophrenia clinical trials: A feasibility study. *Schizophrenia Research*, *59*, 243–251.

Hauser, P., Wills, K. E., & Isquith, P. (2006). Hard of hearing, deafness, and being deaf. In J. Farmer, J. Donders, & S. Warschausky (Eds.), *Treating neurodevelopmental disorders*. New York: Guilford Press.

Heaton, R. K., Avitable, N., Grant, I., & Matthews, C. G. (1999). Further cross validation of regression-based neuropsychological norms with an update for the boston naming test. *Journal of Clinical and Experimental Neuropsychology*, *21*, 572–582.

Hindley, P., Hill, P., & Bond, D. (1993). Interviewing deaf children, the interviewer effect: A research note. *Journal of Child Psychology and Psychiatry*, *34*, 1461–1467.

Ivnik, R. J., Malec, J. F., Smith, G. E., Tangalos, E. G., Peterson, R. C., Kokmen, E., et al. (1992). Mayo's older American normative studies: WAIS-R, WMS-R and AVLT norms for ages 56 through 97. *The Clinical Neuropsychologist*, *6*(Suppl.), 1–104.

Ivnik, R. J., Malec, J. F., Smith, G. E., Tangalos, E. G., & Peterson, R. C. (1996). Neuropsychological tests' norms above age 55: COWAT, BNT < MAE, Token, WRAT-R Reading, AMNART, STROOP, TMT and JLO. *The Clinical Neuropsychologist*, *10*, 262–278.

Johnson-Green, D. & the NAN Policy & Planning Committee. (2005). Informed consent in clinical neuropsychology practice: Official statement of the national academy of neuropsychology. *Archives of Clinical Neuropsychology*, *20*, 335–340.

Kane, R. L., Goldstein, G., & Parsons, O. A. (1989). A response to Mapou. *Journal of Clinical and Experimental Neuropsychology*, *11*, 589–595.

Lamberty, G. J., Courtney, J., & Heilbronner, R. L. (Eds.). (2003), *The practice of clinical neuropsychology*. Lisse: Swets & Zeitlinger.

Lezak, M. D., Howieson, D., & Loring, D. (2004). *Neuropsychological assessment* (4th ed.). New York: Oxford University Press.

Lucas, J. A., Ivnik, R. J., Willis, F. B., Ferman, T. J., Smith, G. E., Parfitt, F. C. et al. (2005). Mayo's older African Americans normative studies: Normative data for commonly used clinical neuropsychological measures. *The Clinical Neuropsychologist*, *19*, 162–183.

Manly, J. J. (2005). Advantages and disadvantages of separate norms for African Americans. *The Clinical Neuropsychologist*, *19*, 270–275.

Manly, J. J., Miller, S. W., Heaton, R. K., Byrd, D., Reilly, J., Velasquez, R. J. et al. (1998). The effect of African-American acculturation on neuropsychological test performance in normal and HIV-positive individuals. The HIV neurobehavioral research center (HNRC) group. *Journal of the International Neuropsychological Society*, *4*, 291–302.

Marcos, L. R. (1979). Effects of interpreters on the evaluation of psychopathology in non-English speaking patients. *American Journal of Psychiatry*, *136*, 171–174.

Mason, T. (2005). Cross cultural instrument translation: Assessment, translation, and statistical applications. *American Annals of the Deaf*, *150*, 67–72.

Matarazzo, J. D. (1990). Psychological assessment versus psychological testing: Validation from binet to the school, clinic, and courtroom. *American Psychologist*, *45*, 999–1017.

Matarazzo, R. G. (1995). Psychological report standards in neuropsychology. *The Clinical Neuropsychologist*, *9*, 249–250.

Meyer, G. J., Finn, S. E., Eyde, L. D., Moreland, K. L., Dies, R. R., Eisman, E. J. et al. (2001). Psychological testing and psychological assessment: A review of evidence and issues. *American Psychologist*, *56*, 128–165.

Mittenberg, W., Patton, C., Canyock, E. M., & Condit, D. C. (2002). Baserates of malingering and symptom exaggeration. *Journal of Clinical and Experimental Neuropsychology*, *24*, 1094–1102.

National Academy of Neuropsychology. (2000a). Presence of third party observers during neuropsychological testing: Official statement of the National Academy of Neuropsychology. *Archives of Clinical Neuropsychology*, *15*, 379–380.

National Academy of Neuropsychology. (2000b). The use of neuropsychology test technicians in clinical practice. Official statement of the National Academy of Neuropsychology. *Archives of Clinical Neuropsychology*, *15*, 381–382.

National Academy of Neuropsychology. (2000c). Test security: Official statement of the National Academy of Neuropsychology. *Archives of Clinical Neuropsychology*, *15*, 383–386.

National Academy of Neuropsychology. (2001). Definition of a clinical neuropsychologist. *Archives of Clinical Neuropsychology*, *18*, 551–555.

Ortiz, S. O. (2001). Assessment of cognitive abilities in Hispanic children. *Seminars in Speech and Language*, *22*, 17–36.

Perez-Arce, P. & Puente, A. (1998). Neuropsychological assessment of ethnic minorities: The case of assessing hispanics living in North America. In R. J. Sbordone & C. J. Long (Eds.), *Ecological validity of neuropsychological testing* (pp. 283–300). Delray Beach, FL: St. Lucie Press.

Prigatano, G. P. (2002). Neuropsychology, the patient's experience, and the political forces within our field–The problem of lost normality after brain injury. *Archives of Clinical Neuropsychology*, *15*, 71–82.

Prigatano, G. P. & Pliskin, N. H. (2003). *Clinical neuropsychology and cost outcome research*. New York: Psychology Press.

Rourke, B. P. & Murji, S. (2000). A history of the international neuropsychological society: The early years (1965–1985). *Journal of the International Neuropsychological Society*, *6*, 491–509.

Russell, E. W., Russell, S. L. K., & Hill, B. D. (2005). The fundamental psychometric status of neuropsychological batteries. *Archives of Clinical Neuropsychology*, *20*, 785–794.

Selnes, O. A., Jacobson, L., Machado, A. M., Becker, J. T., Wesch, J., Miller, E. N. et al. (1991). Normative data for a brief neuropsychological screening battery. Multicenter AIDS cohort study. *Perceptual and Motor Skills*, *73*, 539–550.

Simeonsson, R. & Rosenthal, S. (Eds.). (2001). *Psychological and developmental assessment: Children with disabilities and chronic conditions*. New York: Guilford Press.

Sweet, J. J., Peck, E., Abramowitz, C., & Etzweiler, S. (2000). National academy of neuropsychology/division 40 of the American psychological association practice survey of clinical neuropsychology in the United States, Part I: Practitioner and practice characteristics, professional activities, and time requirements. *The Clinical Neuropsychologist*, *16*, 109–127.

Van de Vijver, F. & Hambleton, R. K. (1996). Translating tests: Some practical guidelines. *European Psychologist*, *1*, 89–99.

Vanderploeg, R. D. (Ed.). (2000). *Clinician's guide to neuropsychological assessment*. Mahwah, NJ: Lawrence Erlbaum Associates Inc.

Vernon, M. (2005). Fifty years of research on the intelligence of deaf and hard-of-hearing children: A review of literature and discussion of implications. *Journal of Deaf Studies and Deaf Education*, *10*, 225–231.

Wong, T. M. & Fujii, D. E. (2004). Neuropsychological assessment of Asian Americans: Demographic factors, cultural diversity, and practical guidelines. *Applied Neuropsychology*, *11*, 23–36.

APPENDIX 1: BACKGROUND OF THE GUIDELINE DEVELOPMENT PROCESS

At its June 2003 annual meeting in Minneapolis, MN, AACN sponsored a forum, chaired by Robert Heilbronner, to discuss the need for and feasibility of developing practice guidelines for neuropsychology. There was general support for considering this project, with due circumspection, and there were no dissenting opinions. Subsequently, noting that such a project was consistent with its mission and bylaws, the AACN Board of Directors (BOD) approved the formation of a Practice Guidelines Working Group under the auspices of its Practice Committee, initially co-chaired by Robert Heilbronner and Michael Schmidt. Beginning in 2004, following Dr. Schmidt's resignation, the group was chaired by Dr. Heilbronner.

The working group was assembled from AACN members by invitation of the co-chairs, to include individuals who would provide broad representation in the field of neuropsychology. The group included neuropsychologists who work in a variety of settings, including independent practice, clinics, hospitals, and universities (see Practice Guidelines Subcommittee below). Professional emphases encompassed the adult, child, forensic, and research arenas. The group included individuals who had held elected offices in various neuropsychological organizations and who had served on the editorial boards of a number of professional journals.

The co-chairs assembled a packet of core references, including a number of published position papers relevant to the practice of clinical neuropsychology, as well as policy statements and ethical guidelines of APA and other scientific and professional organizations. The references were provided to each working group member. In addition, individual working group members used their professional judgment and discretion in considering the professional literature within their areas of expertise.

An initial working group meeting was held during the 2004 INS meeting in Baltimore, MD. A general outline of the guidelines was approved, and group members volunteered to take primary responsibility for portions of this outline, based on their specific areas of interest and expertise. To ensure a broader perspective, at least two individuals were assigned to each area. Initial drafts were compiled, and revisions were made based on input from all working group members.

The committee met again in St. Louis, MO at the 2005 INS Meeting and further revisions were made. After that meeting, the draft document, including literature citations, was approved by a general consensus from working group members. The document was then submitted to an independent peer-review panel of senior neuropsychologists for comments (see Senior Level Peer-Reviewers below). Following further revisions based on this review, a revised document was submitted to the AACN BOD and reviewed first by the President (R. Mapou) and Vice-President (J. Sweet). Revisions were recommended and made by Dr. Heilbronner and selected group members. The document was submitted to the BOD on November 15th where it was reviewed by all members of the BOD. Consolidated comments were provided from the BOD to the Practice Guidelines Committee on January 7th, 2006. A number of revisions and changes were recommended. These were made and a final document was submitted to the BOD on May 1st 2006. It was reviewed by all members of the BOD and accepted in its current form on June 16th, 2006.

Practice Guidelines Subcommittee

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