Entry-level Competencies in Clinical Neuropsychology

Preamble

Scope

This document represents an inter-organizational effort promoted and moderated by the Clinical Neuropsychology Synarchy (CNS) to delineate entry-level competences for the specialty of clinical neuropsychology. It is important to emphasize that enumeration of entry-level competencies does *not* alter Houston Conference Guidelines (HCG) which continue to guide education and training in the specialty of clinical neuropsychology. Whereas the HCG describe the ***process*** of specialty training in clinical neuropsychology, this document describes the expected ***outcomes*** that constitute the end result of HCG-inspired education and training. These outcomes are enumerated in terms of practicable and measurable competencies. The HCG specify that rigorous, extensive and cumulative training in clinical neuropsychology takes place at the doctoral, internship, and postdoctoral levels but allows for flexibility regarding the level at which different trainees may achieve specific knowledge and skills. Similarly, this document presents entry-level competencies that constitute the practice of clinical neuropsychology, cognizant that no single level of training imparts all competencies and that individuals may acquire these competencies in a varied fashion. Furthermore, it is recognized that students ***and*** training programs share the responsibility for ensuring that individuals acquire these competencies across the levels of training. These competency guidelines are intended to provide an aspirational, integrated approach to enumerating entry level knowledge and skills in the specialty of clinical neuropsychology.

Background

The specialty training guidelines for clinical neuropsychology delineated in the Houston Conference policy statement, (Hannay, et al., 1998) have served the field well for almost 20 years. They have served as a specific but flexible guide for ***how*** to train in the field. A survey conducted in 2010 by the Inter-organizational Steering Committee on Education and Training (ISET) showed that HCG have been widely adopted by training programs. Furthermore, those receiving training consistent with the guidelines rated themselves as being well-prepared for practice (Sweet, et al., 2012). As such, the ISET saw no need for a wholesale revision of training guidelines, but acknowledged that a broadening of the field and new technologies may prompt the need for updates.

While HCG have been invaluable in specifying training structure, they were less explicit in describing incremental training goals, i.e., ***what*** the training structures described in the HCG should deliver. In the time since those guidelines were developed there has been increasing emphasis on defining competencies for professional practice, including within medicine (Epstein & Hundert, 2002; Williams et al., 2010) and psychology (Health Service Psychology Education Collaborative, 2013; Kaslow, 2004; Kaslow et al., 2004; Roberts et al., 2005; Rodolfa et al., 2005). As such, it has become increasingly important to express professional activities in terms of *practice competencies*. Clinical neuropsychology has yet to delineate detailed competencies for entry-level practice. At the point of its fourth petition for recognition as a specialty by the APA, it behooves clinical neuropsychology to do so.

Because HCG specify that a two-year postdoctoral residency serves as the culminating prerequisite for entry into practice in the specialty, defining entry-level competencies de

facto defines the competencies expected of trainees at the completion of the postdoctoral residency, with career-long continuing education to maintain competency. Enumeration of these entry-level competencies will have the following benefits:

- Serve as a helpful resource for training programs, especially programs seeking accreditation at the postdoctoral level. Common materials could also be developed that greatly streamline the process of initiating and maintaining accreditation.
- Enhance the process of specialty credentialing of clinical neuropsychologists.
- Provide a framework for more senior clinical neuropsychologists to consider continuing education opportunities.
- Serve to identify the unique knowledge, skills, and abilities of clinical neuropsychologists that will enhance broad advocacy efforts in a changing healthcare environment.

Process

An initial effort to develop entry-level competencies was made by Rey-Casserly, Roper, and Bauer (2012) in *Professional Psychology: Research and Practice*. Those competencies were reviewed in detail by a task force established by the Clinical Neuropsychology Synarchy (CNS) which included Glenn Smith, CNS Chair, Neil Pliskin, SCN President, Paula Shear, SCN Past-President, Celiane Rey-Casserly, past Chair of the APA Committee on Accreditation, and Brad Roper, Chair of the SCN Education Advisory Committee, resulting in several wording changes from the original article. This first revision of the document was forwarded to all CNS member organizations on 1/4/2015 inviting comment. Initial reactions to the competencies were discussed at the CNS meeting in Denver in February, 2015. Organizations then provided feedback in earnest over the course of the ensuing year. These comments were coalesced by Dr. Roper and discussed at the CNS annual meeting in Boston in February of 2016. At that meeting a subcommittee was formed to finalize integration of member organizations' contributions into the competency documents. A second revision was submitted to all member organizations in the spring of 2016 requesting that the organizations affirm the committee's accommodation of their input. The final document will be included along with our petition for continued recognition as a specialty area to the Commission for the Recognition of Specialties and Proficiencies in Professional Psychology (CRSPPP) at the end of 2016.

Structure

The competencies are organized into eight *foundational* competencies that cross multiple areas of practice (Table 1), and seven *functional* competencies pertaining to specific domains of practice (Tables 2-8). These specific competencies in clinical neuropsychology build on foundational and functional competencies attained in professional psychology doctoral training, in many cases describing the application of generic health service psychology competencies (Health Service Psychology Education Collaborative, 2013; Kaslow, 2004; Kaslow et al., 2004; Roberts et al., 2005; Rodolfa et al., 2005) in the field of clinical neuropsychology. The functional competencies are organized into elements that are knowledge-based and elements that are skill-based. Clinical neuropsychologists will not employ or demonstrate all competencies equally over the course of their careers. For example, some neuropsychologists may focus primarily on assessment in their practice and demonstrate intervention skills in the context of recommending treatment plans and some neuropsychologists in independent practice may not engage in formal academic teaching, but will be involved in educating

patients/families and the community. However, at entry into specialty practice, it is expected that they will possess all competencies and be able to demonstrate the competency elements listed in the tables.

Measurement

Consistent with HCG, the entry level for practice begins after completion of an APA/CPA-accredited doctoral training program, APA/CPA-accredited internship, and a two-year postdoctoral residency. As discussed above, HCG specifies that training relevant to clinical neuropsychology take place at all levels, and the entry-level competencies provided herein are directly relevant to the endpoint of formal training. Each level of training already incorporates its own forms of interval competency assessments. These start with candidate evaluations leading to graduate school admission, evolve through course exams and grades, qualifying exams, dissertation defenses, practica, internship, and post-doc supervisors' ratings, and culminate via passing written, practice sample, and oral board examinations. However, the enumeration of competencies will undoubtedly spark interest in developing comprehensive systems of measuring and tracking trainee progress across the sequence of training. Although assessing competency is not part of the current effort, programs and/or organizations may find the entry-level competencies helpful in developing such systems for their own use.

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Appendix: Competencies for Entry-level Clinical Neuropsychology Practice

Table 1: *Foundational Competencies Unique to Clinical Neuropsychology but Common Across Functional Domains*

Cluster/Foundational Domain	Competency encompassed by domain
	The clinical neuropsychologist:
Scientific Knowledge and Methods	• demonstrates knowledge of the clinical and cognitive neurosciences, including neurology, neuroanatomy, neurobiology, neuropathology, brain development, and neurophysiology. • maintains currency with key scientific developments in fields related to practice. • demonstrates and applies knowledge of scientific and scholarly developments in clinical neuropsychology.
Evidence Based Practice	• understands key signs and symptoms of disease processes relevant to practice and how patient characteristics (e.g., demographic factors, comorbidities) affect their expression. • understands age-related changes in brain functioning and behavior across the lifespan. • understands the scientific basis for assessment strategy, including test selection, use of appropriate normative standards, psychometric and operating characteristics, and test limitations. • understands patterns of incidence, prevalence (i.e., base-rate), and natural course of conditions of interest in neuropsychology • appreciates decision-making strategies and their applications in differential diagnosis. • knows the scientific basis for diagnostic conclusions across a range of neuropsychological disorders. • incorporates and uses outcome research in neuropsychology in guiding assessments and formulating interventions, integrating patient and contextual factors. • applies key components of evidence-based practice (i.e., best evidence, clinical expertise, and patient characteristics/culture/values) in selecting appropriate assessment and intervention approaches. • applies information technology to assess and evaluate best evidence to guide practice.

Individual and Cultural Diversity

- integrates knowledge of diversity issues in neuropsychological assessment, research, treatment, and consultation (e.g. health disparities, language differences, educational level, cultural context, literacy, individual differences).
- understands and appreciates how cultural, linguistic, disability, and other demographic/socioeconomic factors affect the process and outcomes of neuropsychological assessments and the application of normative data and interpretations in specific populations.

Ethical, Legal Standards and Policy

- applies ethical concepts across a range of settings; demonstrates awareness of legal issues relevant to the professional activities of clinical neuropsychologists across settings, including healthcare, research, school, military/veteran, industry, and forensic (e.g., criminal, personal injury, disability determination, fitness for duty, etc.).
- understands specific ethical and legal issues that are relevant to neuropsychologist's activities across settings, including informed consent, third party assessments, use of technicians/psychometrists, third party observers, disclosure of neuropsychological test data, and test security.

Professional Identity

- demonstrates professional identity as a clinical neuropsychologist; understands the unique contributions of neuropsychology to different educational, healthcare, and forensic/legal contexts.
- demonstrates awareness of the roles of clinical neuropsychologists, and how those roles vary across settings (e.g., practice, research, training, etc.) and assessment/intervention contexts.

Reflective Practice/Self-Assessment/Self-Care

- engages in reflective self-assessment regarding the dynamic knowledge base and skill sets necessary for practice in clinical neuropsychology across practice settings with the goal of improving skill level over time; understands limits of competence in particular populations or settings and seeks to lessen their impact through continuing education, peer supervision/consultation, or additional training as needed.

Relationships

- maintains effective and productive relationships with patients, families, caregivers, colleagues, team members, trainees/students, and communities across complex interprofessional settings.

	• communicates clearly and effectively through both oral and written means, integrating and explaining neuropsychological concepts and interpretations in a manner best suited to particular audience (e.g., other professionals, patients, families, and caregivers).
Interdisciplinary Systems	• demonstrates knowledge of key issues and concepts in related disciplines (e.g., neurology, psychiatry, neuroradiology, rehabilitation, education) the ability to communicate and interact knowledgeably with professionals across these disciplines. • understands the roles of other professionals with regard to patient care and integrates the perspectives of related disciplines into their case conceptualizations. • makes appropriate referrals to other health professionals as part of treatment planning. • is able to work as a member of interprofessional teams and collaborate with other professionals to contribute neuropsychological information to overall team diagnostic formulation, planning, and intervention.

Table 2: *Functional Competencies: Assessment*

Domain	Competency encompassed by domain
Knowledge-based competencies	The clinical neuropsychologist will have knowledge of: • neuropsychology of behavior, including information processing theories, cognitive/affective neuroscience, social neuroscience, cultural neuroscience, and behavioral neurology. • patterns of behavioral, cognitive, and emotional impairments associated with neurological and related diseases and conditions that affect brain structure and functioning. • neurochemistry, neuropsychopharmacology, neuroendocrinology, and related areas relevant to practice. • neurodiagnostic techniques relevant to practice. • effects of common systemic medical illnesses on brain functioning and behavior. • patterns of behavioral, cognitive, and emotional impairments associated with psychiatric disorders. • potential influences of motivational factors and assessment context on test performance. • medications used for common medical diseases and psychiatric disorders and their effects on brain functioning and behavior. • theories and methods of measurement and psychometrics relevant to cognitive abilities, social and emotional functioning, and brain-behavior relationships, including test development, reliability, reliable change, and validity approaches (e.g., construct, content, criterion, ecological).

	• potential functional implications of neuromedical conditions and neuropsychological impairments as they relate to everyday ability level, quality of life, and educational/working/social/living environments.
Applied competencies	The clinical neuropsychologist will be able to: • analyze and clarify referral questions based on the context, professional roles, and the patient/examinee presentation. • gather information key to addressing the referral question, including interview(s), targeted behavioral observations, and review of records. • appropriately select tests, measures, and other information sources consistent with best evidence and specific context of assessment, including assessment of performance and symptom validity, if relevant. • appropriately administer and score tests and measures. • interpret assessment results, with formation of an integrated conceptualization that draws from all relevant information sources (e.g., interview, test results, behavioral observations, records). • provide recommendations for management that are appropriate to the assessment context and consistent with evidence-based practices. • demonstrate written communication skills in the production of integrated neuropsychological assessment reports. • provide feedback, as relevant to the assessment context, to patients, families, or caregivers in a sensitive manner adapting to the needs of the specific audience. • address issues related to specific populations (e.g. cultural or linguistic differences, physical or mental disability, use of interpreters, educational level) appropriately by referring to other providers with specialized competence, obtaining consultation, and describing limitations in assessment interpretation.

Table 3: *Functional Competencies: Intervention*

Domain	Competency encompassed by domain
Knowledge-based competencies	The clinical neuropsychologist will have knowledge of: • evidenced-based intervention practices to address cognitive and behavioral problems present in different clinical populations. • theoretical and procedural bases of intervention methods appropriate to address disorders of language, attention, learning and memory, executive skills, problem solving, perceptual processing, sensorimotor functioning, and psychological/emotional adjustment. • how complex neurobehavioral disorders (e.g., aphasia, anosognosia, neuropsychiatric illness) and sociocultural factors can affect the applicability of interventions. • how to promote cognitive health with patients through activities such

	as physical and cognitive exercise, stress management, and sleep hygiene. • empirically supported interventions provided by psychologists and other mental and behavioral health professionals.
Applied competencies	The clinical neuropsychologist will be able to: • identify targets of interventions and specify intervention needs. • employ assessment and provision of feedback for therapeutic benefit. • identify potential barriers to intervention and adapt interventions to minimize such barriers. • develop and implement treatment plans that address neuropsychological deficits while accounting for patient preferences, individual differences, and social cultural context. • implement evidence-based interventions in neuropsychological disorders. • independently evaluate the effectiveness of interventions employing appropriate assessment and outcome measurement strategies. • demonstrate an awareness of ethical and legal ramifications of neuropsychological intervention strategies.

Table 4: *Functional Competencies: Consultation*

Domain	Competency encompassed by domain
Knowledge-based competencies	The clinical neuropsychologist will have knowledge of: • professional roles and expectations of a consulting clinical neuropsychologist specific to each setting. • relevant literatures on the roles of neuropsychologists in consultation settings. • appropriate and contextually sensitive methods of consultation.
Applied competencies	The clinical neuropsychologist will be able to: • determine and clarify referral issues. • educate referral sources regarding the utility and relevance of neuropsychological services. • communicate findings from consultation activities effectively and efficiently. • provide effective assessment feedback and articulate appropriate recommendations in language appropriate for the audience. • provide effective consultation services within common settings and contexts in clinical neuropsychology practice. • communicate scientific findings within clinical neuropsychology in a manner that is relevant to the consultation setting and understandable to the recipient. • provide consultation in clinical research regarding brain behavior relationships and appropriate neurobehavioral assessment strategies and tools.

Table 5: *Functional Competencies: Research/Evaluation*

Domain	Competency encompassed by domain
Knowledge-based competencies	The clinical neuropsychologist will have knowledge of: • the scientific method in generating neuropsychological knowledge and evaluating findings related to neuropsychological techniques, brain-behavior relationships, assessment strategies, and interventions. • research design and analysis relevant to clinical neuropsychological science and practice. • the wide array of factors that mediate and modulate behavior and their implications for neuropsychological and related research. • performs research in an ethical and responsible manner, adhering to established national and institutional guidelines.
Applied competencies	The clinical neuropsychologist will be able to: • select research topics and perform literature reviews effectively. • demonstrate skills in conceptualizing, implementing, and interpreting research design and statistical analysis. • perform research activities, monitoring of progress, and evaluation of outcomes accurately and effectively. • communicate research findings effectively. • apply research methods in evaluating effectiveness of professional activities in clinical neuropsychology.

Table 6: *Functional Competencies: Teaching/Supervision*

Domain	Competency encompassed by domain
Knowledge-based competencies	The clinical neuropsychologist will have knowledge of: • supervision theories, methods, and practices in professional psychology and clinical neuropsychology. • developmental stages in training that may impact the acquisition of clinical neuropsychology knowledge and skills. • ethical issues and state requirements relevant to teaching and supervision
Applied competencies	The clinical neuropsychologist will be able to: • provide effective teaching activities, presenting materials in an organized manner that is appropriate to the needs of the audience. • provide effective training to psychology trainees in the foundations of assessment, psychometric theory, and the administration and scoring

	procedures for tests and measures employed in clinical neuropsychology practice. • provide effective training in developing and asserting professional identity and role as a clinical neuropsychologist. • provide effective training in neuropsychological interviewing, test interpretation, case conceptualization, and the development of recommendations. • provide effective training in treatment planning and the provision of feedback. • demonstrate sensitivity to individual and cultural differences in supervisory contexts.

Table 7: *Functional Competencies: Management/Administration*

Domain	Competency encompassed by domain
Knowledge-based competencies	The clinical neuropsychologist will have knowledge of: • administrative structures of practice settings relevant to neuropsychology. • common administrative and business practices needed to address prevalent assessment and consultation issues in neuropsychology practice (e.g., referral patterns, coding, billing, documentation). • methods and procedures for outcome assessment, program evaluation, and research in neuropsychology.
Applied competencies	The clinical neuropsychologist will be able to: • function effectively within administrative systems, educating others about role of neuropsychology and supporting structures with the goal of improving access to needed services. • implement administrative structures to address needs in neuropsychology practice settings (e.g., quality improvement, access to care, funding). • train and supervise technicians/psychometrists and monitor their skills following regulatory, ethical and legal standards.

Table 8: *Functional Competencies: Advocacy*

Domain	Competency encompassed by domain
Knowledge-based competencies	The clinical neuropsychologist will have knowledge of: • regulatory and policy initiatives that can affect provision of neuropsychology services and access to care.
Applied competencies	The clinical neuropsychologist will be able to: • apply scientific knowledge and skills in neuropsychology to advocate for needs of individuals/groups across systems and to advocate for equity and access to quality care.

- collaborate with psychologists and other professionals to advocate for the profession and the specialty of neuropsychology.
- educate the public about the nature and value of neuropsychology in healthcare.