PETITION FOR THE RECOGNITION OF A
SPECIALTY IN PROFESSIONAL PSYCHOLOGY

THIS PETITION gives guidance to the types and amounts of information necessary for a formal decision to be reached. Petitioning organizations may use additional pages where necessary. The petitioning organization is free to provide any additional material deemed relevant.

NOTE: Complete responses to all questions posed in each of the criteria are required. Appendix materials should not be considered as substitutes for the completion of responses to questions in the criteria.

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PETITION PACKAGE
Preamble

Knowledge and practice skills in psychology have expanded and become increasingly differentiated over the past 50 years. Historically, the American Psychological Association (APA) acknowledged four professional specialties in psychology: clinical, counseling, school, and industrial/organizational psychology. It is important to note that these specialties first gained de facto recognition through a process of historical evolution. The APA accreditation guidelines also reference clinical, counseling, and school psychology as specialties.

A shared core of scientific and professional knowledge, skills, and attitudes is common to professional specialties. This shared core has been recognized in several conference reports on the future of professional psychology including the reports of groups and conferences of the National Council of Schools and Programs of Professional Psychology, the Joint Council on Professional Education in Psychology, and the National Conference on Scientist-Practitioner Education and Training for the Professional Practice of Psychology. Nothing in this document precludes a provider of psychological services from using the methods or dealing with the populations of any specialty, except insofar as they do so “within the boundaries of their competence, based on their education, training, supervised experience, consultation, study, or professional experience” (APA Ethical Principles of Psychologists and Code of Conduct, 2002).

The public will continue to need the services of general practice specialists, such as those offered by clinical, counseling, school and industrial/organizational psychologists. However, the emergence of new specialties to provide needed psychological services must also be recognized and validated. There must be a mechanism within the field to provide for the recognition of specialties.

Recent decades have produced what amounts to an explosion in professional knowledge and areas of application. As a result, new areas of application of psychology's scientific and applied knowledge have been organized around particular emphases in professional practice. The training to acquire this knowledge and skill may occur at the doctoral and/or postdoctoral levels. Such a proliferation of knowledge and an expansion of practice domains has resulted in a need to establish a process for recognizing specialties in professional practice that are differentiated from core scientific and applied professional foundations in psychology. At various times in past years, groups within and outside APA have worked to articulate such an identification and recognition process. Acknowledgement is given to the work of APA's Task Force on Specialty Criteria, the Board of Professional Affairs Subcommittee on Specialization, and the Board of Educational Affairs Task Force on Scope and Criteria of Accreditation, as well as the American Board of Professional Psychology for important contributions to this process. Their efforts have been a part of the continuing evolution of a process to identify specialties in psychology. It is now time for APA to exercise leadership in the design and implementation of a de jure process for the recognition of specialties in psychology.

For purposes of this endeavor the following definition of a specialty is adopted:
A specialty is a defined area of professional psychology practice characterized by a distinctive configuration of competent services for specified problems and populations. Practice in a specialty requires advanced knowledge and skills acquired through an organized sequence of education and training in addition to the broad and general education and core scientific and professional foundations acquired through an APA or CPA accredited doctoral program.* Specialty training may be acquired either at the doctoral or postdoctoral level as defined by the specialty.

*Except where APA or CPA program accreditation does not exist for that area of professional psychology

Although the specific dimensions of specialty programs may vary in their emphases and in available resources, every defined specialty in professional psychology will contain: (a) core scientific foundations in psychology; (b) a basic professional foundation; (c) advanced scientific and theoretical knowledge germane to the specialty; and (d) advanced professional applications of this knowledge to selected problems and populations in particular settings, through use of procedures and techniques validated on the same.

The relationship between a body of knowledge and a set of skills in reference to each of the parameters of practice specified in Criterion VI below represents the most critical aspect of the basic definition of a specialty.

A specialty is distinguished from a proficiency, which is a circumscribed activity in the general practice of professional psychology or one or more of its specialties that is represented by a distinct procedure, technique, or applied skill set used in psychological assessment, treatment and/or intervention within which one develops competence.

The American Psychological Association and its Commission for the Recognition of Specialties and Proficiencies in Professional Psychology (CRSPPP) will consider petitions for formal recognition of specialties. Petitions that are received by CRSPPP will be reviewed and acted upon by the APA Council of Representatives. CRSPPP will review the status of each specialty at least every seven years and recommend whether the specialty should continue to be recognized.
Name of Proposed Specialty: Clinical Neuropsychology

Please check one:

☐ Petition for Initial Recognition
☒ Petition for Renewal of Recognition
Criterion I. Administrative Organizations. The proposed specialty is represented by a specialty council or one or more organizations that provide systems and structures sufficient to assure the organized development of the specialty. **Commentary:** The evolution of a specialty generally proceeds from networks of psychologists interested in the area to the eventual establishment of organized administrative bodies which carry out specific responsibilities for the specialty and its practitioners. These responsibilities include governance structures which meet regularly to review and further describe the specialty and appropriate policies for education and training in the specialty.

1. Please provide the following information for the organization or specialty council submitting the petition:

   Name of organization or specialty council: The Clinical Neuropsychology Synarchy (CNS)

   Address: c/o Glenn Smith PhD  
   Department of Clinical & Health Psychology  
   1225 Center Drive, Rm 3151  PO Box 100165

   City/State/Zip: Gainesville, FL, 326510-0165

   Phone: 202-336-500 352-273-6556 (Glenn Smith PhD)  FAX: 352-273-6156

   E-mail address: glennsmith@phhp.ufl.edu

   Website of organization: [http://cospp.org/specialties/clinical-neuropsychology](http://cospp.org/specialties/clinical-neuropsychology)

2. Please provide the following information for the President, Chair, or representative of the organization or specialty council submitting the petition:

   Name: Glenn Smith, PhD  
   APA membership status: Fellow  
   Chair, Clinical Neuropsychology Synarchy  

   Address  
   Department of Clinical & Health Psychology  
   1225 Center Drive, Rm 3151  
   PO Box 100165

   City/State/Zip: Gainesville, FL 32610-0165

   Phone: 352-273-6556  FAX: 352-273-6156

   E-mail address: glennsmith@phhp.ufl.edu

3. Please provide the following information for the organization or specialty council submitting the petition:
This specialty petition is being submitted by the Clinical Neuropsychology Synarchy. The purpose of the CNS is to:
1. Support and maintain the recognition of clinical neuropsychology as a specialty in the professional psychology.
2. Facilitate communication across clinical neuropsychology organizations.
4. Represent the specialty of Clinical Neuropsychology to the Council of Specialties in Professional Psychology.

The CNS is comprised of representatives of 8 organizations:
- The Society of Clinical Neuropsychology (APA Division 40)
- The American Academy of Clinical Neuropsychology (AACN)
- The National Academy of Neuropsychology (NAN)
- American Board of Clinical Neuropsychology (ABCN)
- The American Board of Professional Neuropsychology (ABN)
- Hispanic Neuropsychological Society (HNS)
- Association of Post-Doctoral Programs in Clinical Neuropsychology (APPCN)
- Association of Internship training programs in Clinical Neuropsychology (AITCN)

These organizations serve overlapping but distinct constituencies. For example, the Society for Clinical Neuropsychology (SCN) is one of the largest divisions in the American Psychological Association. The mission of SCN is to advance the specialty of clinical neuropsychology as a science and profession and as a means of enhancing human welfare. The Division addresses this mission by promoting excellence in clinical practice, scientific research, and professional education in the public interest. The goals derived from this mission are to be achieved in cooperation with the American Psychological Association, other professional organizations, and the general public. SCN is a scientific and professional organization of psychologists interested in the study of brain-behavior relationships, and the clinical application of that knowledge to human problems. SCN promotes the use of scientific research to develop its knowledge base and clinical techniques. It is active in the development and promotion of quality standards of professional training and practice.

The mission of NAN is to advance neuropsychology as a science and health profession, to promote human welfare, and to generate and disseminate knowledge of brain-behavior relationships. Objectives in service of this mission include provision of information and support to the membership and the profession to enhance neuropsychological assessment, treatment, and consultation services; dissemination of neuropsychological knowledge through continuing education, annual conferences, supported research, publications, and various forms of social media; promotion of research to improve knowledge of brain-behavior relationships; improvement in the efficacy of outcomes in neuropsychological evaluations and interventions; enhancement of understanding cultural and individual diversity as it applies to the study and
practice of neuropsychology; provision of education to the public that fosters healthy behavior and the prevention of neurological illness and injury; and advocacy on behalf of the profession, health consumers, and the promotion of neuropsychological health. NAN has been a leader in distance online continuing education, engages in professional and legislative advocacy and in the development of position papers (http://nanonline.org/nan/Professional_Resources/Position_Papers/NAN/ ProfessionalResources/Position_Papers.aspx?hkey=71602191-716a-4375-8eb8-4b4e6a071e3a). Dissemination of knowledge and research in the field of neuropsychology is facilitated through the annual conference, a grants program, and the NAN publications that include the Archives of Clinical Neuropsychology, Bulletin newsletter, and NAN book Series.

The American Academy of Clinical Neuropsychology (AACN) was established in 1996 (Ivnik, Haaland, & Bieliauskas, 2000) after the American Board of Professional Psychology requested that each specialty boards establish legally independent academies to govern all specialty activities other than the examination itself. AACN engages in a wide range of activities on its members' behalf. AACN has sponsored regional continuing education workshops and instituted annual national meetings, most recently in Chicago (2016). The meeting provides continuing education activities, as well as an opportunity for informal professional interaction. AACN also has engaged in activities to promote both the board certification process and the specialty of clinical neuropsychology. They have developed a written guide that can be used by candidates to help prepare for each stage of the examination, established a computer list serve for AACN members, and created a mentoring program that promotes successful completion of the certification process by neuropsychologists who have not yet become board certified. AACN has also published position papers regarding important issues in clinical neuropsychology (https://theaacn.org/position-papers-and-policies/), and has established a relationship with The Clinical Neuropsychologist as its official journal. In 2015, AACN and ABCN reached a significant milestone together, when the 1000th clinical neuropsychologist completed the ABCN board certification process satisfactorily.

Please append the bylaws for the petitioning organization or specialty council if bylaws are not provided on the website.

Bylaws are online at COSPP.org/clinical-neuropsychology and included in appendix 1.

Outline the structure and functions of the administrative organization or specialty council (frequency of meetings, number of meetings per year, membership size, functions performed, how decisions are made, types of committees, dues structure, publications, etc.) using the table below. Provide samples of newsletters, journals, and other publications, etc.
collaborating with other neuropsychology organizations in addressing the mission of advancing the specialty of clinical neuropsychology and enhancing public welfare. The Society of Clinical Neuropsychology is actively involved in initiatives of the APA. In the area of practice, the SCN Practice Advisory Committee has worked diligently with APA on issues of reimbursement and coding for neuropsychological services, and use of psychometrists. These efforts that have benefited the profession as a whole. SCN has also contributed the neuropsychological perspective on major committees, task forces, and boards of the APA. Collaborations amongst the neuropsychology groups have resulted in studies and joint position papers relevant to practice, education, and science in neuropsychology. The Education Advisory Committee maintains a database of training programs in the field. The SCN Newsletter features articles and columns of interest to the professional neuropsychologist in the forms of interesting, unusual, or prototypical cases, scientific topical reviews of contemporary import and interest, articles concerning the professional practice of neuropsychology, and timely professional issues regarding training, accreditation, licensing, and inter-organizational matters. Seeking to be a publication of interest and merit to the entire community of neuropsychologists, Newsletter 40’s contents have been designed to appeal to practicing clinicians, academic researchers, and professionals involved primarily in teaching or program administration. SCN is a member of the Clinical Neuropsychology Synarchy and has taken leadership in organizing resources for Synarchy membership on the Council of Specialties. NAN, SCN, ABN and AACN coordinate through the Inter Organization Practice Committee.

| How are decisions made | CNS convenes clinical neuropsychology organization to consider developments (e.g. training taxonomy) and promote advancements (competency based training) in the field. Generally the CNS strives for consensus but when such consensus cannot be attained a vote is taken. Each organization sending a representative to CNS has a board including officers and members at large elected by their respective broad membership. These officials conduct the business of the organization. Each of the petitioning member organizations sends an official representative to the CNS. The CNS also includes representative for training groups at the Intern, and Post-doctoral levels. |
| Types of committees | All organizations have membership, nominations, annual conference, education, and practice committees. SCN and NAN have science advisory committees. NAN has a research grants committee, along with legislative action and advocacy, Diversity, student, and other committees. |
| Dues Structure | CNS dues for member organizations $300. Annual SCN $34 added to APA dues, AACN-$175  NAN-$150, ABN, $190 and HNS $50 |
| Names of Publications | CNS has no official publication. Newsletter 40, the official Newsletter of SCN is published twice a year. The newsletter is available at [http://www.scn40.org/newsletter-40.html](http://www.scn40.org/newsletter-40.html). A recent edition of the newsletter is attached in Appendix 2. *The Clinical Neuropsychologist* is the official journal of AACN. And the *Archives of Clinical Neuropsychology* is the journal of NAN. |
| Website | [http://cospp.org/specialties/clinical-neuropsychology](http://cospp.org/specialties/clinical-neuropsychology) |

Present a rationale that describes how your organization or specialty council provides systems and structures that make a significant contribution to the organized development of the specialty.

Via the Clinical Neuropsychology Synarchy, its member organizations are actively involved in initiatives of the American Psychological Association and in collaborating with each other and other neuropsychology organizations in addressing the mission of advancing the specialty of clinical neuropsychology and enhancing public welfare. In the
area of practice, an inter-organizational practice committee has worked diligently with APA practice organization on issues of reimbursement and coding for neuropsychological services, use of psychometrists in professional practice, certification, and other efforts that have benefited the profession as a whole. SCN (Division 40) has also contributed the neuropsychological perspective on major committees, task forces, and boards of the APA. Collaborations with other neuropsychology groups have resulted in studies and joint position papers relevant to practice, education, and science in neuropsychology. The Clinical Neuropsychology Synarchy chair actively participates in the Council of Specialties.

4. Signatures of official representing the organization or specialty council submitting the petition:

[Signature]
Glenn Smith Chair CNS December 30, 2018

name title date
Criterion II. Public Need for Specialty Practice. The services of the specialty are responsive to identifiable public needs

Commentary: Specialties may evolve from the professions’ recognition that there is a particular public need for applications of psychology. Specialties may also develop from advances in scientific psychology from which applications to serve the public may be derived.

1. Describe the public needs that this specialty fulfills with relevant references. Under each need specify the populations served and relevant references.

There is a critical need for clinical neuropsychology services that is only increasing. Advances in medical treatments and increases in life expectancy have served to expand the public need for the specialty of clinical neuropsychology. Clinical neuropsychology developed in response to the need for screening and diagnosis of brain injured and behaviorally impaired military personnel during the World Wars. The specialty then expanded to serve people with a full range of developmental and acquired neurological conditions. Contemporary clinical neuropsychologists assess, diagnose, and provide treatment to individuals who have been born with neurological abnormalities or who have sustained central nervous system injury or illness. Such disorders include genetic abnormalities, congenital problems, traumatic brain injury, stroke, tumors, central nervous system infections, exposure to toxic substances, metabolic diseases, and degenerative diseases of the brain. It has become clear that many medical disorders can have impact on neuropsychological functioning, such as major organ transplant, chemotherapy treatment, cardiac disease, and endocrine dysfunction, among others. Since people in industrialized countries are living longer and the risk of dementia increases exponentially with age, the number of older individuals suffering from degenerative brain disorders is exploding. Children with complex or chronic health conditions that affect the central nervous system are surviving into adulthood with significant special needs. Consequently, the understanding of the behavioral expression of brain dysfunction, a critical role of neuropsychology, will continue to be needed in the ongoing medical management, rehabilitation and intervention of a range of individuals across the lifespan. Clinical neuropsychological examination can be required for diagnosis, patient care and planning, treatment planning and remediation, treatment evaluation, research, and forensic applications (Lezak, et al., 2012). In addition, neuropsychologists play a critical role in educating patients and families about neurological, psychological, and neuropsychological conditions (Tranel, 2008).

Examples of the utility of neuropsychological services across the age span:

- Evaluation of neurocognitive effects of mild, moderate, or severe head injuries
- Diagnosis of progressive dementing diseases, including differential diagnosis of psychiatric illness
- Identification of acquired neurocognitive dysfunction undermining adaptive and prosocial functioning
- Identification of developmental neurocognitive dysfunction impeding academic and social functioning
- Incorporation of neuropsychological findings in treatment plans to increase the probability that specific treatment modalities can be effective
- Identification of medication efficacy or side-effects that may have an impact on cognitive functioning
- Use of neuropsychological evaluation to develop and refine educational plans for children
- Use of neuropsychological findings in remediating vocational problems in adults
- Identification of community-based programs for remediation and rehabilitation of neurocognitive dysfunction
- Discrimination of different types of neurological conditions
- Development of a program of rehabilitation or intervention
- Assessment of response to treatments
- Evaluation of indications for specific medical treatments (e.g., epilepsy surgery for seizure control, deep brain stimulation in Parkinson’s disease)
- Education of medical teams, schools, families, caregivers, and patients regarding the impact of neurological disorders on behavior and adjustment

Referrals are usually made by physicians, psychologists, schools, attorneys, and the general public.
The journal articles and books listed below document the need for and utility of neuropsychological services in a range of populations:


and timing of assessment. Archives of Physical Medicine and Rehabilitation, 89(12 Suppl), S51-60.
2. Describe what procedures this petitioning organization and/or other associations associated with this specialty utilize to assess changes public needs.

Clinical Neuropsychology Synarchy members are committed to enhancing human welfare as part of its mission. SCN division’s Public Interest Advisory Committee (PIAC) focuses on educating the public regarding neuropsychology, monitoring public needs, and formulating initiatives to address changing public needs. SCN PIAC has a number of subcommittees that focus on different areas, including ethics, women in neuropsychology, and ethnic minority affairs. PIAC has liaisons and monitors on critical APA boards and committees including: Committee on Children, Youth & Families, Committee on Aging, Board for the Advancement of Psychology in the Public Interest, Committee on Disability Issues in Psychology, Committee on AIDS, Committee on Urban Initiatives, Committee on Rural Health, Committee on Lesbian, Gay & Bisexual Concerns, and Committee on International Relations in Psychology. PIAC has focused on increasing public awareness of the specialty of clinical neuropsychology and publishes two brochures, “Clinical Neuropsychology” and “Pediatric Neuropsychology.” (Appendix 3) These brochures are designed for consumers, are easy to read, provide a general introduction to clinical neuropsychology, and are available in English, Spanish and French. They are intended for use in patient education, communication with referral sources, and whenever there is an opportunity to increase public awareness of neuropsychology.

The mission of the National Academy of Neuropsychology also focuses on promoting human welfare. In fulfilling this mission, NAN’s objectives address goals of public education and advocacy by providing education to the public that fosters healthy behavior and the prevention of neurological illness and injury and advocating on behalf of the profession, health consumers, and the promotion of neuropsychological health. Clinical neuropsychology organizations have worked together in monitoring and responding to areas of critical public need.

In addition to direct service delivery the petitioning organizations seek to contribute to the health literacy and well-being of the public at large. For example AACN has established a Facebook site https://www.facebook.com/search/top/?q=American%20Academy%20of%20Clinical%20Neuropsychology. It provides the organizations commentary on media releases pertinent to brain-behavior relationships, neurological disorders and brain health. In just the past month (July) the specialty has been very active in providing the public information regarding concussion and the risk for dementia, information regarding computerized ‘brain training’, and secondary neurological effects of breast cancer and its treatment, among other topics.

The Clinical Neuropsychology Synarchy meets regularly to address issues affecting the specialty and the public. It brought together organizations in the specialty to collaborate with the Division of Rehabilitation to address the needs of military veterans suffering from traumatic brain injury. The task force worked together to produce a report on the role of neuropsychology and rehabilitation psychology in the evaluation, management, and research of military veterans with traumatic brain injury (McCrea, et al., 2008). The
CNS used its organizational structure, annual meetings, and electronic outreach, to develop, vet and support implementation of the APA Education and Training Taxonomy for Clinical Neuropsychology. And most recently CNS, working closely with SCN Education Advisory Committee, has used this same structure to efficiently develop a set of competencies expected at entry into the practice of Clinical Neuropsychology.

3. Describe how the specialty attends to public need

Clinical Neuropsychology attends to the public most direct in the delivery of special services to people, families and communities where issues of brain health and development impact quality. Through the delivery of evaluation and intervention the members of the petitioning organizations seek to improve the well-being of members of their communities. As reflected in the variety of position papers and other efforts, the specialty endeavors to assure these direct service efforts meet the highest standards of quality and integrity.

On its website, AACN states “The American Academy of Clinical Neuropsychology (AACN) is a membership group that is dedicated to advancing the field of clinical neuropsychology and improving the care of people who see clinical neuropsychologists. Neuropsychologists with Active Member status are all board-certified by the American Board of Clinical Neuropsychology (ABCN) under the auspices of the American Board of Professional Psychology (ABPP). Individuals who are ABCN/ABPP-certified have passed a rigorous evaluation process to demonstrate their competence in clinical neuropsychology.” The bylaws state that supporting the ABCN board certification process is one of AACN’s mission’s as well. The goal of board certification in turn is to assure that individuals who hold themselves out to the public have met rigorous peer review of their competencies. Ultimately this serves to protect the public from potential harm of improper or inadequate care. The AACN maintains a website available to the public so they might identify local board certified clinical neuropsychologists.

NAN is also a membership organization that maintains a membership list that is available online for the public to find neuropsychologists who are providing neuropsychological services to the public. To be a full member of NAN an individual must apply and be sponsorship by two individuals with expertise in neuropsychology, one of who must be a member in good standing with the National Academy of Neuropsychology, Division 40 of the American Psychological Association, or the International Neuropsychological Society.

**Criterion III. Diversity. The specialty demonstrates recognition of the importance of cultural and individual differences and diversity.**

**Commentary:** The specialty provides trainees with relevant knowledge and experiences about the role of cultural and individual differences and diversity in psychological phenomena as it relates to the science and practice of the specialty in each of the following areas: i) development of specialty-specific scientific and theoretical knowledge; ii) preparation for practice; iii) education and training; iv) continuing education and professional development; and v) evaluation of effectiveness

Because the population is diverse:

1. Describe the specialty-specific scientific and theoretical knowledge required for culturally competent practice in the specialty, how it is acquired and what processes are in place for assessment and continued development of such knowledge.

As noted above neuropsychology practice and science relies heavily on the measurement of cognitive and emotional processes. It is well understood in psychology that linguistic, ethnic, and cultural factors
substantially contribute to these measurement processes. Valuable and valid science and practice requires a high level of cultural competence and the field is continuously engaging in efforts to improve such competence. Neuropsychologists are contributing to specialty specific research and practice in diversity issues in neuropsychology, culturally competent care, and health disparities (Elbulok-Charcape, Rabin, Spadaccini, & Barr, 2014; Farias, Mungas, Hinton, & Haan, 2011; Ferraro, 2015; Fletcher-Janzen, Strickland, & Reynolds, 2013; Kontos, Elbin, Covassin, & Larson, 2010; Manly et al., 2011; Mindt, Arentoft, Coulehan, & Byrd, 2013; O’Bryant, Schrimsher, Johnson, & Zhang, 2011; Olson & Jacobson, 2015) (Rivera Mindt, Byrd, Saez, & Manly, 2010; Rosselli, Ardila, Navarrete, & Matute, 2010; Saez et al., 2014) (Schneider & Lichtenberg, 2011; Thames et al., 2013; Yeo & Gallager-Thompson, 2013).

For example, in May of 2016 the AACN announced its **Relevance 2050 Initiative**. One of the initiative’s first actions was to create a dedicated seat on the AACN Executive Committee of the Board for an individual with experience and expertise in diversity issues. As stated on it’s website (https://theaacn.org/relevance-2050-initiative/#gsc.tab=0): “Relevance 2050’s goals are to support new assessment methods, training models, mid career supervision models, and clinical strategies that **every Academy member** can access in order to begin to substantially increase the percentage of patients we, and the generation of neuropsychologists who follow us, are able to competently serve.”

“By the year 2050, a full 60% of the American population will be “un-testable” with our current toolkit of largely mono-lingual, mono-cultural neuropsychological assessment strategies. This lack of access to neuropsychological services by non-primarily English speaking, non-European American patients is clearly a social justice issue. But it is more than that. It is a market share issue of staggering proportions. As a profession we will become increasingly **irrelevant in the healthcare marketplace** if we do not take substantial action now.”

Additional Academy members and non-academy members with expertise and interest have additionally been recruited to assemble a team of experienced researchers, clinicians, and student stakeholders. The Hispanic Neuropsychological Society has been an active participant in these efforts.

2. Describe how the specialty prepares psychologists for practice with people from diverse cultural and individual backgrounds (e.g., through coursework, supervised practice, continued professional development, etc.) and how competence is demonstrated.

The Houston Guidelines specify that training in the specialty begin with preparation in APA-accredited doctoral programs and internships. This accreditation requirement means the programs preparing clinical neuropsychologists have met APA Standards on Accreditation regarding coursework and supervision on Cultural and Individual Differences and Diversity (Domain D). This assures that clinical neuropsychologists are provided a strong diversity foundation from the very beginning of training in the specialty.

Moreover, The Ethnic Minority Affairs subcommittee of SCN offers several mentoring and career development activities that include a dedicated listserv and mentoring database. For example in 2015, SCN’s Ethnic and Minority Affairs (EMA) Subcommittee in combination with its Association of Neuropsychology Students in Training (ANST) offered the webinar “Cross-Cultural Neuropsychology: Training and Practice Considerations” (https://www.youtube.com/watch?v=9dWSvu2Rhc). The Division 40 Ethnic Minority Affairs subcommittee sponsors mentoring events for prospective students and minority neuropsychologists during the APA Convention. The 2009 session was a panel discussion on "Careers in Neuropsychology." There is also a graduate school pre-application program that provides professional review of graduate school application materials of minority undergraduates prior to submission in order to: 1) ensure the student’s readiness, 2) enhance competitiveness, and 3) direct students to programs best
matched with their career goals and skill level. The National Academy of Neuropsychology (NAN) Cultural and Diversity Committee offers scholarships for undergraduates who represent diversity to attend their annual meeting. Students are recruited from universities in the location where the meeting is to be held. The program provides an introduction to the field of neuropsychology and NAN, guidance on how to make best use of the conference, and mentoring throughout the duration of the conference. Furthermore, NAN is supporting presentations about neuropsychology to predominantly ethnic minority high schools in the city hosting its annual conference. The specialty is actively addressing issues of public need for culturally competent care in neuropsychology through a range of efforts. A Neuropsychology Diversity Summit was held in conjunction with the annual meeting of the International Neuropsychological Society. The Summit had inter-organizational support from the major organizations in the specialty as well as the American Psychological Association. The Summit drew together neuropsychologists of various backgrounds and areas of expertise to address the challenges of assessing ethnic minorities and the need for increasing the number of ethnically and linguistically diverse neuropsychologists (Romero, et al., 2009),. The Hispanic Neuropsychological Society sponsors conferences to take place the day before the International Neuropsychological Society meetings. For example, in February, 2010, the conference was titled: “Próximos Pasos: The Next Steps in Developing Skill Sets for the Neuropsychological Evaluation of Spanish Speakers.” The Hispanic Neuropsychological Society posts a list of resources and publications on its website (http://www.hnps.org/privatenewsgroup2). The American Academy of Clinical Neuropsychology (AACN) posts a list of multicultural references available to all (http://www.theaacn.org/position_papers/AACN_multicultural_references.pdf). Neuropsychologists are contributing to the research and practice scientific literature on neuropsychological issues and diversity. The areas of cultural issues, health disparities, individual differences, cross-cultural applications, and measurement are active areas of investigation.

Cultural competence is assessed throughout the training and certification process, from classroom assessments of students’ knowledge of cultural influences on cognition and behavior through supervised training experiences with diverse cases at the practicum, internship and post-doctoral levels, to the routine assessment of cultural competence during board certification examinations.

3. Describe how the specialty is monitoring developments and has moved to meet identified emergent needs and changing demographics in training, research, and practice (e.g., through research, needs assessment, or market surveys).

SCN, NAN, and AACN each have structures and initiatives in place to address issues of diversity, emergent needs, and changing demographics. Expanding the number of neuropsychologists who represent diversity is seen as a critical need for the specialty. The Ethnic and Minorities Affairs committee of SCN works to address a range of diversity issues in SCN. Some of their initiatives can be found at http://www.scn40.org/ethnic-minority-affairs-subcommittee.html.

NAN’s Culture and Diversity Committee serves the same function for this organization. The range of this committee’s activities can be found at http://www.nanonline.org/nan/About_NAN/NAN_Committees/Culture___Diversity_Committee/NAN/_AboutNAN/Committee_Pages/Culture___Diversity.aspx?hkey=46f7a7e9-8887-4d29-bcae-15093690ccec9.

CNS has been added the Hispanic Neuropsychological Society to expand its membership. CNS is currently in discussions with other organizations addressing the neuropsychological needs of underrepresented groups. CNS may add additional members in the next one to two years to assure robust representation of diverse groups in CNS’ composition.

4. Describe how the education and training and practice guidelines for the specialty reflect the specialty’s recognition of the importance of cultural and individual differences and diversity.
In 2016, all CNS member organizations endorsed a new set of competencies for entry into the professional practice of Clinical Neuropsychology (see Appendix 4). Among the foundational competencies present in this set are:

**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.

References Criterion II


Criterion IV. Distinctiveness. A specialty differs from other recognized specialties in its body of specialized scientific knowledge and professional application.

Commentary: While it is recognized that there will be overlap in the knowledge and skill among various specialties in psychology, the petitioning organizations must describe the specialty in detail to demonstrate that it is distinct from other recognized specialties in the knowledge and skills required or the need or population served, problems addressed and procedures and techniques used.

1. Identify how the following parameters differentiate and where they might overlap with other specialties. Describe how these parameters define professional practice in the specialty.

   a. populations

   Adult neurological populations include cerebrovascular accidents, neoplasms, infectious and inflammatory diseases, degenerative diseases, traumatic brain injury, hypoxic and anoxic conditions of the central nervous system, neurotoxic exposures, seizure disorders, demyelinating disease and various forms of dementing illness. Psychiatric populations of primary interest include somatic disorders of pseudoneurologic character; depression as a component of and/or to be differentiated from dementia; psychosis as a pseudodementing disorder and as a differential diagnostic entity to be distinguished from behavioral disturbances in selected neurological populations such as partial complex seizure disorders. Neuropsychologists also play a role in determining the nature of cognitive deficits associated with major psychiatric disorders. Other adult populations also include adult attention deficit hyperactivity disorder (ADHD) and learning disabilities.

   General medical and surgical populations include older individuals who may have some neuropsychological deficits associated with an early dementing illness that may complicate medical or surgical management; candidates for kidney transplant or dialysis; patients undergoing chemotherapy; candidates for cardiac surgery, including transplants, and chronic pain patients. Neuropsychologists contribute to the management of patients with systemic medical disorders that can affect the central nervous system such as auto-immune diseases (systemic lupus erythematosus) and endocrine dysfunction.

   Children with acquired or congenital disorders of the nervous system, as well as children with learning disabilities and neurodevelopmental disorders are referred by pediatricians, pediatric neurologists, schools, families, mental health clinics, and community agencies. Populations include genetic disorders, traumatic brain injury, congenital brain anomalies, low birth weight, pediatric epilepsy, brain tumors, toxic exposures, and autism and related disorders, as well as other types of pediatric neurological populations. As is the case for adults, clinical neuropsychologists provide services to growing populations of children with medical disorders such as sickle cell disease, childhood cancer, cardiac disease, and auto-immune disorders.

   b. problems (psychological, biological, and/or social that are specific to this specialty):

   Referrals for clinical neuropsychological assessment typically include, but are not limited to, the following:
differential diagnoses between two or more suspected etiologies of cerebral dysfunction; evaluation of residual neurobehavioral strengths and accompanying impairments secondary to a neurological insult or disease; discrimination of psychiatric and neurological symptoms; documentation of neuropsychological repercussions of psychiatric disorders; identification of early stages of a suspected neurological disorder; establishment of neurobehavioral baseline measures for monitoring progressive cerebral disease or recovery; assessment of competence for independent decision making; comparison of pre- and post pharmacological, surgical, or behavioral interventions; assessment of higher cortical functions for the formulation of rehabilitation and intervention strategies.

Intervention problems include design of programs for utilizing available functions to compensate for impaired function; retraining of the impaired function to a higher level of adaptive effectiveness; counseling and education of patients and families regarding the impact of neuropsychological conditions, and recommending/implementing environmental (ecological) manipulations to enhance adaptive effectiveness. Clinical neuropsychologists function primarily on referral from health, education, and legal professionals; agencies and institutions; and in response to needs of other service systems (e.g., courts, schools, extended rehabilitation facilities and general care facilities, military installations, and chemical treatment facilities).

Primary employment settings include hospital-medical centers, independent practice, and a combination of hospital or clinic-based employment, and independent practice (Sweet, Benson, Nelson, & Moberg, & 2015).

c. procedures and techniques

Clinical neuropsychological services include neuropsychological assessment, treatment planning, cognitive remediation and intervention, agency and institutional consultation, education and counseling for individuals and families, and selected psychological treatments as appropriate for neurologically involved individuals. The range of techniques and procedures available for neuropsychological assessment is very broad and expanding (Baron and Rey-Casserly, 2013; Lezak, et al., 2012; Mitrushina, Boone, Razani, & D'Elia, 2005; Strauss, Sherman, & Spreen, 2006); cognitive remediation and intervention strategies are also in continual development (Butler, et al., 2008; Chandler, Parks, Rottblatt, Marsiske and Smith, 2016; Eslinger, 2002; Johnstone, 2001; Greenaway, Duncan and Smith, 2013; Kerns, Mateer, & Vernescu, 2008; Sohlberg & Mateer, 2001; Wilson, Gracey, Evans, & Bateman, 2009).

Differentiation of clinical neuropsychology from other psychological specialties is reflected in the distinction between generic competencies and specialized competencies. Generic applied competency requires a foundation in psychological science and practice in professional psychology. Clinical neuropsychology involves the building of specialized competencies upon a base of foundational and functional competencies obtained in a professional psychology doctoral program training psychologists for health provision services; these are specifically delineated in the Competency Benchmarks document (Fouad, et al., 2009). Foundational competencies include professionalism (integrity, concern for public welfare), reflective practice, scientific knowledge and methods (science of human behavior and research methods), relationship skills, appreciation of and ability to integrate issues of individual and cultural diversity, knowledge and adherence to ethical and legal standards, and ability to work effectively in interdisciplinary systems; functional competencies include applied skills in assessment/diagnosis (structure and process of interviewing; intellectual, adaptive, aptitude, and personality measurement;), intervention/treatment, consultation, supervision, teaching, program management/administration, and advocacy (consumer-patient education, promotion of welfare). Building upon this foundation, specialized clinical neuropsychological competence includes effectiveness in comprehensive history taking; identification of neurobehavioral problems/issues to be addressed; application of a wide range of neuropsychological assessment procedures to multiple populations; knowledge of test construction and validation; remedial and supportive intervention design and implementation; individual and agency consultation; and consumer education/ethics, specifically in a neuropsychological context. Such specialized competency is achieved by means of sets of skills anchored to the above parameters of practice in the settings outlined in a, b and c above. While there is overlap with the other health-related specialties in terms of foundational and functional competencies, there is the elaboration, extension, and refinement of neurobehavioral applications that involve additional foundations in experimental, cognitive and
physiological psychology as well as in the clinical neurosciences. Furthermore, clinical neuropsychologists integrate psychological findings from history, interviewing, observations, and assessment from the perspective of an understanding of brain behavior relationships as well as social/cultural context. Such extensions of knowledge and application are obtained by specialty track or emphasis programs at the predoctoral and internship levels and by postdoctoral training in a specialized clinical neuropsychology program as exemplified under Criterion VII.

2. In addition to the professional practice domains described above, describe the theoretical and scientific knowledge required for the specialty and provide references for each domain as described below. For each of the following core professional practice domains, provide a brief description of the specialized knowledge that is required and provide the most current available published references in each area (e.g., books, chapters, articles in refereed journals, etc.) While reliance on some classic references is acceptable, the majority of references provided should be from last five years and should provide scientific evidence for the theoretical and psychological knowledge required for the specialty.

a. assessment:
The first and still fundamental practice of clinical neuropsychology is the evaluation of psychological and behavioral disturbances associated with central nervous system dysfunction. The clinician is required to establish a comprehensive database of historical and current general medical and surgical, neurological, pharmacological, developmental and psychosocial factors underlying the presenting problem. Included in this database is the entire complement of specialized neural diagnostic procedures such as neural imaging electroencephalography, and brain-mapping techniques. An assessment strategy is derived from the neuropsychological knowledge base, referral questions, and social-cultural context and requires knowledge of the various neuropsychological protocols, test procedures, and inventories that are available through a rapidly expanding literature. The assessment strategy can include the application of fixed batteries at their current stage of validation and the design of flexible test batteries based on an understanding of the probable primary processes that may be affected by the underlying disease process. The assessment goal is to address relevant neurobehavioral aspects of higher psychological functioning that are considered to be central to understanding the cognitive strengths and deficits of the individual. Assessments are tailored to the individual both with respect to test selection and adaptation of the assessment to the patient’s condition (M. D. Lezak, Howieson, Loring, Hannay, & Fischer, 2004; Tranel, 2008).

- Differential diagnosis between types of neurobehavioral dysfunction


- Differential diagnosis and interface between neurological and psychiatric conditions


- evaluation of residual neurobehavioral strengths and accompanying impairments secondary to a neurological insult or disease in children and adults


- documentation of neuropsychological repercussions of psychiatric disorders

• establishment of neurobehavioral baseline measures for monitoring progressive cerebral disease or recovery


• assessment of competence for independent decision making

b. intervention:

The focus of clinical neuropsychology began with an emphasis on diagnostic questions. Currently, clinical neuropsychologists are typically involved in treatment planning and evaluation that is informed by the assessment process. Neuropsychological evaluation includes both assessment and management components. In addition to the traditional psychotherapeutic methods and competencies derived from the neuropsychologist's professional psychology training, knowledge and skills in communication of findings and formulation of neuropsychological interventions are required. The necessary knowledge for neuropsychological intervention includes theories and procedures for modifying attention, learning and memory, problem solving, perceptual processing, and sensorimotor functioning at the basic and applied levels. Neuropsychologists are involved in, or consult to, rehabilitation settings where they are introducing and refining cognitive interventions as guided by increasing knowledge of the cognitive, physiological, and psychosocial bases of neurobehavioral changes in neurological and other medical diseases. Developing and implementing treatment plans to address attention and memory dysfunctions are common considerations, as well as collaborating with speech/language pathologists in the area of language disorders. Clinical neuropsychologists are also engaged in behavioral management of individuals with neuropsychological disorders. There has been a marked expansion of activity in neuropsychological treatment and rehabilitation so that intervention has become a stronger part of the neuropsychologist's functioning in what has been historically a more assessment-oriented specialty. This is likely related to the evolution of the specialty and to advances in understanding brain-behavior relationships.

• comparison of pre- and post pharmacological, surgical, or behavioral interventions
Fields JA, Ferman TJ, Boeke BF, Smith GE (2011) Neuropsychological assessment of patients with


- formulation of rehabilitation and intervention strategies


c. consultation:
Consultation is a vital area of clinical neuropsychology practice and requires a knowledge base in consultation-liaison, systems of care, interdisciplinary systems, and professional roles/expectations. Professional competence in interpersonal interactions, individual and cultural diversity, ethics and legal foundations, and professional identification as related to consultation are critical. Neuropsychologists consult with health care professionals from other disciplines, educational personnel, social service agencies, nursing homes, rehabilitation centers, industry, legal systems, public policy makers, and individuals in other institutions and settings. Clinical neuropsychologists consult with others regarding clinical neuropsychological research such as paradigms for evaluating specific cognitive processes. Neuropsychological consultation activities embrace areas of medicine beyond psychiatry and neurology including medical specialties of cardiology and cardiac surgery, infectious and inflammatory diseases, oncology, toxicology, and public health. Such consultative activities require at least an introductory knowledge in those areas of medical practice, an understanding of different settings and systems involved, and knowledge of effective communication strategies. Similarly, consultation to educators (e.g., learning disorders) and attorneys (personal injury cases, toxic exposure cases, and selected criminal cases where competency to stand trial or be sentenced is at issue) requires specific knowledge of these contexts.


D. supervision:
Engagement in the supervision of trainees in clinical neuropsychology requires the above knowledge foundations as well as understanding of supervision models, legal issues, and ethical standards, and is usually obtained in training settings such as hospitals, health sciences centers, and clinics. Mentoring and supervised experience play a large role in preparing individuals for supervisory roles, as well as knowledge. Neuropsychologists also participate in teaching and mentoring of psychology trainees, supervision and training of technicians and research assistants, and in educating colleagues and the community about neuropsychological issues.

e. research and inquiry:

Clinical neuropsychologists are expected to engage in clinical research and scholarly inquiry. The knowledge base required includes scientific foundations of psychology and research methodology. Understanding of issues of diversity and ethical standards in interdisciplinary research is also required. Clinical neuropsychologists actively integrate science and practice. A substantial proportion of clinical neuropsychologists is engaged in research and contributes to the scientific literature in the area. This is evidenced by the marked expansion in the number of journals in which neuropsychological research is published and in the expansion of postdoctoral training programs. The scope of clinical neuropsychological research is indeed broad and the depth of knowledge is substantial. A review of the major journals and basic texts in clinical neuropsychology confirms this statement (Appendix 5).

f. Public interest:

As the specialty of neuropsychology has evolved, specific requirements for knowledge and skills acquired through the sequence of training have been delineated. Health care settings require specific advanced training to credential faculty to practice in the specialty. The establishment of board certification procedures in clinical neuropsychology is one way to identify competent individuals in the interest of the consumer, as it provides an individualized, specific, competency-based, peer review process. Board examination includes a substantial ethics and professional issues component. The American Board of Clinical Neuropsychology (ABCN) affiliated with ABPP and the American Board of Professional Neuropsychology (ABN) are the two leading credentialing organizations in the field. Each major neuropsychology organization has an ethics committee so that there is considerable deliberation within the specialty about ethical issues.
Continuing professional development
Each of the major organizations provides continuing education opportunities for professionals in the field. Many state statutes now require continuing education for maintenance of the state's license. Attendance at scientific and professional meetings is outstanding in this specialty, as evidenced by the continuing growth of program time based on attendance figures for Division 40 of APA, the National Academy of Neuropsychology, the International Neuropsychological Society, and the American Academy of Clinical Neuropsychology (see Criterion VIII). Educational offerings related to professional development, including ethics, legal issues, and diversity are frequently included in the curriculum. There is also considerable interest in obtaining the ABPP/ABCN diploma in clinical neuropsychology; as of November 2016, there were 1800 ABPP board certified Clinical Neuropsychologists in 48 states and the District of Columbia, and four provinces in Canada. As of this same date, more than 500 candidates were at some stage of the examination process. Expertise in advocacy for the specialty and for needs in the community is also an area for professional development.

any relevant additional core professional practice domains.
n/a

3. Identify professional practice activities associated with the specialty in each of the following domains and how they differentiate and where they might overlap with other specialties.

<table>
<thead>
<tr>
<th>Professional Practice Activities</th>
<th>Essential</th>
<th>Important</th>
<th>Distinctive</th>
<th>Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment based on historical information, other neurodiagnostic findings, interview data, and neuropsychological evaluation findings for the purpose of identifying the likely presence of some form of central nervous system disorder.</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Assessment based on the above information for the purpose of differentiating psychiatric from neurological disorders.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Assessment based on the above information for the purpose of differentiating diffuse from localized higher cortical dysfunction</td>
<td>X</td>
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<tr>
<td>Assessment based on the above information for the purpose of differentiating among two or more suspected etiologies of cerebral dysfunction.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Assessment based upon the above information for the purpose of identifying spared and impaired functions and estimating longitudinal outcome for neurological insult or disorder.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Baseline assessment of spared and impaired higher cortical functions for the purpose of monitoring recovery processes.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Comparison of pre- and post- neuropsychological functioning following pharmacological, surgical and behavioral interventions.</td>
<td>X</td>
<td>X</td>
<td></td>
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</tbody>
</table>
Assessment of cognitive and affective status for the purpose of formulating rehabilitation strategies and for the design of remedial interventions. | X | X |
---|---|---|
Assessment based on the above sources of information for the purpose of evaluating competence to stand trial, to participate in long-term intervention such as heart and kidney transplantation, or similar treatment regimens. | | X | X |
<table>
<thead>
<tr>
<th><strong>Research and Inquiry</strong></th>
<th>Essential</th>
<th>Important</th>
<th>Distinctive</th>
<th>Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform research on the efficacy of neuropsychological test procedures for the differential diagnosis of neurobehavioral disorders.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Perform comparable research for differentiating psychological and neurological disorders.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Perform research into the cognitive processes underlying particular neuropsychological deficits.</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Perform program evaluation studies to determine the effectiveness of service delivery in particular settings.</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Design and evaluate the effectiveness of a cognitive intervention in single cases.</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Perform taxonomic research for the classification of neuropsychological deficits and brain-behavior disorders.</td>
<td>X</td>
<td>X</td>
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</table>

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<th>Important</th>
<th>Distinctive</th>
<th>Shared</th>
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</thead>
<tbody>
<tr>
<td><strong>Public Interest</strong></td>
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<tr>
<td>Seek to meet performance criteria for becoming a diplomate of ABPP/ABCN.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Continually develop ethical standards for the performance of various roles of neuropsychologists as above.</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Endeavor to publish for public distribution information regarding the activities of neuropsychologists and the costs as well as effectiveness of their services.</td>
<td>X</td>
<td>X</td>
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<tr>
<td>Participate in studies of ecological validity of neuropsychological evaluation tools.</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Engage in program evaluation research that evaluates in a recurring and progressive fashion the effectiveness of services and activities.</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>Participate in activities to educate the community (general public, legislators, patients) about neuropsychological disorders and clinical neuropsychology.</td>
<td>X</td>
<td>X</td>
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</table>

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<thead>
<tr>
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<th>Essential</th>
<th>Important</th>
<th>Distinctive</th>
<th>Shared</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuing Professional Development</strong></td>
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<tr>
<td>Affiliate with scientific/professional organizations whose mission it is to advance knowledge and practice in neuropsychology.</td>
<td>X</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Engage in continuing education, life-long learning activities to strengthen existing competencies and add new competencies.</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>Participate in local, national or international organizational activities in neuropsychology (elected office, committee membership, program development, task forces).</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish mentoring relationships in the specialty in practice, research, public interest, or educational endeavors.</td>
<td>X</td>
<td>X</td>
<td></td>
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</tbody>
</table>

**Criterion V. Advanced Scientific and Theoretical Preparation.** In addition to a shared core of knowledge, skills and attitudes required of all practitioners, a specialty requires advanced, specialty-specific scientific knowledge.

*Commentary:* Petitions demonstrate how advanced scientific and theoretical knowledge is acquired and how the basic preparation is extended.

1. Specialty education and training may occur at the doctoral (including internship), postdoctoral or post-licensure levels. State the level of training of the proposed specialty.
Specialty education and training in clinical neuropsychology remains guided by the Houston Conference Guidelines (HCG) as referenced below. The HCG specifies that clinical neuropsychology training begins at the doctoral level and is completed during postdoctoral residency training. Building on a foundation of general professional psychology competencies, specialized competencies in relevant brain behavior knowledge and clinical neuropsychology practice skills begin to be developed during doctoral training and internship in rotations, tracks, or specialized clinical experiences and coursework. The postdoctoral residency is a two-year, full time training experience designed to complete the sequence of the education and training necessary for independent practice in the specialty of clinical neuropsychology.

2. Training at the doctoral level is assumed to be primarily broad and general. If specialty training occurs in whole or in part at the doctoral level, describe that training. If there is specialty specific scientific knowledge that is typically integrated with aspects of the broad and general psych curriculum (e.g., biological bases of behavior, cognitive-affective bases of behavior, individual bases of behavior, ethics (science and practice) rather than taught as a freestanding course or clinical experience, specify how this integration occurs.

Education and training guidelines for clinical neuropsychology were developed at the inter-organizational Houston Conference in 1997. A consensual training model was devised that proposed both generic and specialized training through a systematic sequence of experiences in the doctoral program, internship and postdoctoral residency. The model describes a set of “exit criteria” and a programmatic and competency-based approach to the sequence of training in the specialty. The processes and means across the levels of training for attaining competencies in clinical neuropsychology and the exit criteria to be achieved at the end of the residency are delineated. The model recognizes that competencies are developed across the sequence and the specific level at which each competency is achieved can vary, but not the content. The proceedings of the conference are published in a special issue of the Archives of Clinical Neuropsychology (Vol. 13): Hannay, H. J. (1998). Proceedings of the Houston conference on specialty education and training in clinical neuropsychology, Archives of Clinical Neuropsychology, 13(2), 157-250.

The policy statement generated by the conference is accessible at the websites of clinical neuropsychology organizations and included in Appendix 6:

The Houston Conference education and training guidelines describe the required knowledge base that includes a generic psychology core, a generic clinical core, foundations of brain-behavior relationships, and foundations for practice in clinical neuropsychology and a specific skill base that includes assessment, treatment and interventions, consultation, research, and teaching/supervision. Broad and general foundational knowledge and skills are mastered at the doctoral level. Students develop rudimentary to intermediate specialized skills in clinical neuropsychology in the doctoral program and internship. These competencies are developed to the independent level during the postdoctoral residency.

Houston conference guidelines identified knowledge and skill areas:

a. biological bases of behavior- generic psychology core and foundations of brain behavior relationships

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

b. cognitive-affective bases of behavior – generic psychology core and generic clinical core

Learning, cognition and perception
Psychopathology

c. social bases of behavior – generic psychology core

Social psychology and personality
Life span development
Cultural and individual differences and diversity

d. individual bases of behavior – generic psychology core

Cultural and individual differences and diversity
Learning, cognition, and perception

e. ethics (science and practice) - generic psychology core, foundations for the practice of clinical neuropsychology

Professional ethics and legal standards
Professional issues and ethics in neuropsychology

f. research design, methodology, statistics - generic psychology core, generic clinical core, foundations for the practice of clinical neuropsychology

Statistics and methodology
Psychometric theory
Research design and analysis in professional psychology
Doctoral dissertation

g. history and systems – generic psychology core

History and systems in psychology

h. measurement - generic psychology core, generic clinical core, foundations for the practice of clinical neuropsychology

Statistics and methodology
Psychometric theory
Research design and analysis in professional psychology
Specialized neuropsychological assessment techniques

i. practicum – generic clinical core, foundations of practice of clinical neuropsychology, generic clinical skills and skills in clinical neuropsychology

Psychopathology
Psychometric theory
Interview and assessment techniques
Intervention techniques
Professional ethics
Specialized neuropsychological assessment techniques
Specialized neuropsychological intervention techniques
j. supervision/teaching- generic clinical skills and skills in clinical neuropsychology

Methods of effective teaching
Plan and design of course and curriculum
Use of effective educational technologies
Use of effective supervision methodologies

k. consultation - generic clinical skills and skills in clinical neuropsychology

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)

l. internship - generic clinical core, foundations of practice of clinical neuropsychology, generic clinical skills and skills in clinical neuropsychology

The internship year completes training in the general practice of professional psychology and extends specialty preparation in the science and professional practice in clinical neuropsychology. The percentage of time devoted to specialized training activities in clinical neuropsychology is determined by the training needs of the individual intern.

Psychopathology
Psychometric theory
Interview and assessment techniques
Intervention techniques
Professional ethics
Specialized neuropsychological assessment techniques
Specialized neuropsychological intervention techniques

m. other, including any additional specialty courses that do not fit the above categories

Methods of effective, empirically supported interviewing, assessment and intervention techniques

3. If specialty training occurs in full or in part during a formal postdoctoral program describe the required education and training and other experiences during the postdoctoral residency. Are there any doctoral level prerequisites beyond an APA-accredited degree in professional psychology required for postdoctoral training?

As the HCGs define multiple pathways to competence in clinical neuropsychology, there are not specific prerequisites beyond completion of an APA (or CPA) accredited degree in professional psychology as well as an APA (or CPA) accredited internship. This prerequisite assures mastery of generic psychology and clinical core knowledge described above and general skills in assessment (information gathering, history taking, administration of tests and measures, interpretation and diagnosis, treatment planning, report writing, provision of feedback, recognition of multicultural issues), 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, and recognition of multicultural issues), consultation, and research. The predominance of the people entering into post-doctoral training in clinical neuropsychology have acquired beginning knowledge and skills in clinical neuropsychology at the doctoral level including beginning to intermediate competencies in brain-behavior relationships, neuropsychological assessment and intervention techniques, and teaching/supervision are expected. Specific coursework in functional neuroanatomy and
neuropsychological assessment is typically completed at the doctoral level. Clinical experiences in practicum and/or internship settings include supervise provision of clinical neuropsychological services

Training proceeds at the post-doctoral level. Postdoctoral training programs in clinical neuropsychology are expected to provide at least 50% time in clinical service as well as clinical research activities. Specific specialized training in neuropsychology is provided and residents receive additional training according to their individual training needs. Training is provided in didactic and experiential formats and includes the following:

Didactic Training
A. Training in neurological and psychiatric diagnosis.
B. Training in consultation to neurological and neurosurgical services.
C. Training in direct consultation to psychiatric, pediatric, or general medical services.
D. Exposure to methods and practices of neurological and neurosurgical consultation.
E. Observation of neurosurgical procedures and biomedical tests.
F. Participation in seminars offered to neurology and neurosurgery residents.
G. Training in neuropsychological techniques, examination, interpretation of test results, report writing as well as integration of issues of culture, context, and diversity in interpretations.
H. Training in consultation to patients and referral sources.
I. Training in methods of intervention specific to clinical neuropsychology.
J. Seminars, readings, etc., in neuropsychology (case conferences, journal discussion, topic-specific seminars).
K. Didactic training in neuroanatomy, neuropathology, & related neurosciences.

Experiential Training
A. Neuropsychological examination and evaluation of patients with actual and suspected neurological diseases and disorders.
B. Neuropsychological examination and evaluation of patients with psychiatric disorders and/or pediatric or general medical patients with neurobehavioral disorders.
C. Participation in clinical activities with neurologists and neurosurgeons.
D. Experience at a specialty clinic setting which emphasizes multidisciplinary approaches to diagnosis and treatment.
E. Direct consultation to patients involving neuropsychological assessment.
F. Direct intervention with patients, specific to neuropsychological issues, and to include psychotherapy and/or family therapy where indicated.
G. Research in neuropsychology, i.e., collaboration on a research project or other scholarly academic activity, initiation of an independent research project or other scholarly academic activity, and presentation or publication of research data where appropriate.

4. If specialty training occurs in full or in part post-licensure, describe the required education and training during this training. Are there any doctoral level prerequisites beyond an APA-accredited degree in professional psychology required for post-licensure training? N/A

Criterion VI. Advanced Preparation in the Parameters of Practice. A specialty requires the advanced didactic and experiential preparation that provides the basis for services with respect to the essential parameters of practice. The parameters to be considered include: a) populations, b) psychological, biological, and/or social problems, and c) procedures and techniques. These parameters should be described in the context of the range of settings or organizational arrangements in which practice occurs. If the specialty training occurs at more
than one level (e.g., doctoral, postdoctoral, post-licensure) please list the levels of preparation separately.

Commentary:

A) Populations. This parameter focuses on the populations served by the specialty, encompassing both individuals and groups. Examples include but are not limited to the following: children, youth and families; older adults; workforce participants and those who seek employment; men and women; racial, ethnic, and language minorities; gay, lesbian, bisexual and transgender individuals; persons of various socioeconomic status groups; religion; and those with physical and/or mental disabilities.

B) Psychological, Biological, and/or Social Problems. This parameter focuses on symptoms, problem behaviors, rehabilitation, prevention, health promotion and enhancement of psychological well-being addressed by the specialty. It also includes attention to physical and mental health, organizational, educational, vocational, and developmental problems.

C) Procedures and Techniques. This parameter consists of the procedures and techniques utilized in the specialty. This includes assessment techniques, intervention strategies, consultative methods, diagnostic procedures, ecological strategies, and applications from the psychological laboratory to serve a public need for psychological assistance.

1. Describe the advanced didactic and experiential preparation for specialty practice in each of the following parameters of practice:
   a. populations (target groups, other specifications):
   b. problems (psychological, biological, and/or social (including symptoms, problems behaviors, prevention, etc.):
   c. procedures and techniques (for assessment, diagnosis, intervention, prevention, etc.):

Clinical neuropsychology is a practice and research specialty of psychology that deals with the relationship between the brain and behavior. Domains of knowledge considered fundamental to clinical neuropsychology include the basic neurosciences, neuropathology, psychological theory, psychopathology, and psychometrics, among others.

Educational programs are usually based in universities, medical schools, or hospitals. The degree program is usually offered through a clinical psychology doctoral program with a special emphasis, experiences, or track in neuropsychology. Division 40 maintains a list of training programs on its website (http://training.scn40.org)

The Association of Postdoctoral Programs in Clinical Neuropsychology (APPCN) was formed in 1992 to assist institutions in developing advanced postdoctoral education and training in clinical neuropsychology and to establish residence program standards for the training of students who wish to specialize in clinical neuropsychology. These programs emphasize supervised clinical and research training on a variety of patient populations -- developmental, neurological and psychiatric. Students are involved in rigorous programs of neuropsychological assessment and treatment. A description of the APPCN, its history, and a list of the current membership may be found on the APPCN website: www.appcn.org
In clinical settings, neuropsychologists assess, diagnose, and provide treatment to individuals who have been born with neurological abnormalities or who have sustained central nervous system injury, or illness. Such maladies include genetic abnormalities, congenital problems, traumatic brain injury, stroke, tumors, exposure to toxic substances, metabolic diseases, and degenerative diseases of the brain. Clinical neuropsychologists also assess, diagnose, and treat children and adults with psychiatric illnesses. Treatment may include direct intervention and program development, as well as consultation with other professionals and family members.

Individuals who have had neurological injuries or illnesses or children who are experiencing difficulties in learning, attention, behavior, socialization or emotional control are often referred to a neuropsychologist in order to determine if their difficulties are the result of the injury, illness, an attention deficit hyperactive disorder, a learning disability, an emotional disability, other biopsychosocial issue or the interaction of these factors.

The neuropsychologist makes these determinations by using a set of scientifically based determinations the constructs and tools believed to be valid and reliable. These constructs are:

1) The brain, a very complex biological system, is the "organ" of behavior.
2) Brain development and function are constrained by both inherited and environmental factors.
3) Behavior, what an organism can do to effect change in its environment, is also genetically and environmentally determined.
4) Neural functioning can be measured and predicted, thereby meeting the criteria for scientific investigation.
5) Behavior is predictable and measurable thereby also meeting criteria for scientific investigation.
6) There are meaningful correlates between neurological functions and behavior.
7) There are cause and effect relationships between brain and behavior.
8) There are valid and reliable measurement paradigms that may be used to define and understand neural functioning.
9) There are valid and reliable measurement paradigms that may be used to define and understand behavior.
10) Both neurological and behavioral systems are dynamic, interactive, change unequally over time, and are subject to manipulation.

There are a number of recognized and valid approaches to clinical neuropsychological assessment including standardized batteries of tests, targeted assessments to evaluate specific functions, and flexible battery approaches. Interpretation of data generated by these tests transcends the actuarial basis of interpretation in that evaluation findings are interpreted through integration of multiple sources and types of data, including psychosocial/cultural/contextual factors. Nevertheless, interpretation of findings is clearly anchored to the scientific and practice literature supporting test applications.

In analyzing the results of testing it must be kept in mind that a clinical judgment regarding an individual complements statistical interpretation in an important and crucial manner. The clinical judgment, however, must be based upon a sound knowledge of the facts and theories about cognitive science and neuropsychology as well as upon an appreciation for any emotional, psychological, developmental, and contextual factors that can affect the patient's level of neurocognitive functioning at the time of assessment.

The results of these analyses are then used to assist with diagnosis, treatment, and rehabilitation, vocational and/or educational planning, such as determining whether a person is in need of a neurocognitive rehabilitation program, or disability assistance, or
Neuropsychologists evaluate different domains of behavior which can be conceptualized in terms of three functional systems: cognition (information handling abilities), emotionality (feelings, motivations), and executive functions (control systems/regulatory capacity, how behavior is expressed) (Lezak et al., 2012). Important domains of neuropsychological functioning the neuropsychologist examines include but are not limited to the following, within each domain are listed component processes:

1) Arousal and Attention Functions
   a) awake and alert
   b) focus and maintain
   c) resist distractors
   d) hemiattention
   e) sustain
      i) simple
      ii) complex (concentration)
   f) span of attention
   g) selective attention
   h) divide attention

2) Executive Functions
   a) regulatory capacity
   b) goal directed behaviors
      i) plan
      ii) initiate
      iii) program
      iv) sequence
      v) organize
      vi) shift
      vii) verify/monitor
      viii) alter/shift

3) Sensory-Perceptual-Laterality-Motor Functions

4) Visuospatial Functions
   a) primary visuoperceptual
   b) secondary visuospatial
   c) construction
   d) organization

5) Language and Related Functions
   a) speech
   b) receptive language
   c) expressive language
   d) lexicon/semantic vocabulary
   e) verbal fluency
      i) semantic
      ii) ortholexic/phonemic
      iii) discursive

6) Learning and Memory Functions
   a) memory retrieval
      i) verbal
      ii) nonverbal
   b) acquisition of novel information
      i) verbal list learning
      ii) verbal logical
      iii) visual
      iv) visual verbal
      v) procedural
7) Organization, Conceptual Formation, Problem Solving and Judgment
   a) using inherent structure
      i) verbal
      ii) visual/nonverbal
   b) using explicit structure
      i) verbal
      ii) visual/nonverbal
   c) problem solving
      i) verbal
      ii) visual/nonverbal
   d) judgment
      i) verbal
      ii) visual/nonverbal

8) Emotional/social
   a) personality
   b) anxiety
   c) affect
   d) thought disturbance
   e) social adjustment

9) Academic Achievement/Adaptive Vocational Function
   a) specific academic skills
   b) adaptive function/independence

10) Effort, response bias

The list of assessment procedures and tests which have been determined to be useful in assisting the neuropsychologist with diagnosis and treatment planning is extensive. These are catalogued in several textbooks whose pages have expanded exponentially with each new edition. A listing of tests is provided in Appendix 7. These references include:

Some clinical neuropsychologists employ technicians whose clinical duties are limited to the administration and scoring of neuropsychology. Although this a recognized standard of practice, there are many clinical neuropsychologists who do not use them which is also acceptable. In either case, the clinical neuropsychologist is responsible for the assessment. The following articles present guidelines for the education and training of technicians and other nondoctoral personnel:
Criterion VII. Structures and Models of Education and Training in the Specialty. The specialty has structures and models to implement the education and training sequence of the specialty. The structures are stable, sufficient in number, and geographically distributed. Specialty education and training may occur at the doctoral, postdoctoral, or both.

Commentary:

A) Sequence of Training. A petition describes a typical sequence of training, including curriculum, research, and supervision.

B) History and Geographic Distribution. A specialty has at least four identifiable psychology programs providing education and training in the specialty in more than one region of the country that are geographically distributed and which have produced an identifiable body of graduates over a period of years.

C) Psychology Faculty. Specialty programs have an identifiable psychology faculty responsible for the education and training of students and their socialization into the specialty. The faculty has expertise relevant to the education and training offered. Faculty may include individuals from other disciplines as appropriate. Specialty programs also have a designated psychologist who is clearly responsible for the integrity and quality of the program and who has administrative authority commensurate with those responsibilities. This psychologist has credentials of excellence (e.g., the diplomate from one of the specialty boards affiliated with the American Board of Professional Psychology, or status as a fellow of the American Psychological Association or the Canadian Psychological Association, or other evidence of equivalent professional recognition) and a record of scholarly productivity as well as other clear evidence of professional competence and leadership.

D) Procedures for Evaluation. Specialty programs regularly monitor the progress of trainees to ensure the relevance and adequacy of the curriculum and integration of the various training components. Attention focuses on the continuing development of the trainee's knowledge, skills, attitudes, and values. Formal performance based feedback is provided to trainees in the program.

E) Admission to the Program. Program descriptions specify the nature and content of the program and whether they are designed to satisfy current licensing and certification requirements for psychologists as well as whether or not graduates can satisfy the education and training requirements for advanced recognition in the specialty. Postdoctoral programs have procedures that take into account the trainees' prior academic and professional record. These programs design an education and training experience that builds upon the doctoral program and internship and the professional experiences of the postdoctoral residents as they prepare for meeting the guidelines of preparation for the specialty.

1. How are education and training programs in the specialty recognized? How many programs exist in the specialty?
A listing of programs that have a focus in clinical neuropsychology is available on the SCN Division 40 website at the doctoral (n=42), internship (n=59), and postdoctoral level (n=123). There are many exemplary doctoral programs that include an emphasis or track in clinical neuropsychology. Doctoral and internship programs, if accredited, are all accredited by the Commission on Accreditation, American Psychological Association. Clinical neuropsychology programs are accredited as postdoctoral specialty residencies through APA. Postdoctoral residency programs can also become members of APPCN by following Houston Conference guidelines. The APPCN website www.appcn.org lists member programs (n=87) that conform to the Houston Conference guidelines. APA provides specialty accreditation for postdoctoral training programs both as individually-accredited specialty programs or as part of an integrated postdoctoral residency. There are currently 31 accredited programs in the specialty, up from 13 in the last specialty renewal (Appendix 8).

CNS, working with affiliated training organizations including, the Association for Internship Training in clinical neuropsychology (AITCN, www.aicen.org and APPCN (website above) contributed to the development and endorsement of the clinical neuropsychology specific taxonomy (see Appendix 9) for programs contributing to the training of clinical neuropsychology specialists.

2. Describe the qualifications necessary for faculty who teach in these programs. Describe the qualifications required for the director of such programs.

At the doctoral level, faculty members are expected to engage in research and clinical activities in the specialty of clinical neuropsychology. For programs that have a major area of study, track directors are expected to be clinical neuropsychologists who have advanced specialty level knowledge and skills.

Faculty members who teach and supervise in postdoctoral residencies are expected to have expertise and demonstrate substantial competence and have credentials in the specialty of neuropsychology. They also serve as professional role models for residents. The training director must have credentials and expertise in the specialty. For APPCN member programs, the training director must be board-certified in clinical neuropsychology.

3. If programs are doctoral level, what are the requirements for admission? Provide sample evaluation forms.

Specific qualifications for student admission vary from program to program at the doctoral level. Students are admitted based on a range of factors including undergraduate preparation, research experience, clinical and research interests, match with mentors, prior achievement, grades, scores, and recommendations. Specific match with the program offerings in neuropsychology is assessed in the selection process.

4. If programs are postdoctoral, what are the requirements for admission? Provide sample evaluation forms.

For entry into a clinical neuropsychology residency program, the Houston Conference guidelines require an APA or CPA accredited doctoral education and training program. Clinical neuropsychology residents will also have successfully completed an APA or CPA accredited internship program that includes some training in clinical neuropsychology. For example, Requirements and preferences for admission described by the Medical College of Wisconsin Postdoctoral Residency program are described below:

“Only applicants with APA or CPA approved graduate programs and internships are considered for the residency. Residents have to have completed their dissertation prior to beginning the residency. At minimum, the generic psychology and clinical core education is required in addition to a solid foundation of clinical professional skills. Some education in basic neuroscience subject areas (e.g.,
neurophysiology, neuroanatomy, functional neuroanatomy, neuropharmacology) is expected, though this need not be extensive as considerable resources are available locally for providing this education. Also, exposure to neuropsychological literature and assessment techniques is expected, though again this need not be extensive, as resources are available for providing this instruction. The ideal resident applicant is one with a solid foundation of clinical psychology knowledge and skills, coursework in life-span neuroscience, human neuropsychology, and neuropsychological assessment, 1000 hours of practicum and internship training that includes experience in neuropsychological assessment, and enthusiasm and capacity for taking advantage of the unique education and training opportunities at MCW (this latter is largely assessed through individual interview, review of letters of recommendations and the nature of prior training experiences).”

5. Include or attach education and training guidelines, for this specialty as appropriate for doctoral training, postdoctoral training, or both. (In this context, education and training guidelines may be found in documents or websites including, but not limited to, those bearing such a title or as described in a variety of published textbooks, chapters, and/or articles focused on such contents.)

Houston Conference guidelines are provided in Appendix 6. These guidelines denote the following as exit criteria for postdoctoral residencies:

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.

In 2010, the steering committee from the Inter-Organizational Summit on Specialty Education and Training (ISET) in clinical neuropsychology undertook a survey of early career clinical neuropsychologists to determine if the HCG were adequately serving the specialty and the public (Sweet, Perry, Ruff, Shear, & Guidotti Breting, 2012) The findings of the survey were reported as “(a) the demographics of respondents in the ISET survey are comparable with a recent larger professional practice survey and thus may reasonably represent the specialty; (b) the HC guidelines appear to have been widely adopted by training programs, in that a large proportion of younger practitioners endorsed having had HC-adherent training; and (c) HC-adherent training is associated with a higher frequency endorsement of being well prepared to engage in key professional activities subsequent to the completion of training when compared with those not having HC-adherent training. Overall, the ISET Steering Committee has concluded that the HC guidelines have been widely adopted and that trainees associate participation in HC-adherent training as advantageous. A potential revision based on unfavorable outcomes is deemed unnecessary.”

During 2015 and 2016, a subcommittee of the CNS was formed to develop a clinical neuropsychology specific competency document intended enumerate the entry-level competencies for the practice of clinical neuropsychology. By July 2016 all CNS member organizations, AACN, NAN, and SCN, as well board certifying organizations ABCN, and ABN, the training program organizations, ADECN, AITCN, and APPCN had endorsed this document, which is provided in Appendix 4. As stated in the preamble:

“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
These competencies, clinical neuropsychology’s taxonomy and provisional competencies to be trained at the post-doctoral level were published this year:


6. Provide sample curriculum expected of model programs.
   **Doctoral level:**
   The description of the neuropsychology area of concentration at the University of Florida is described below; a sample curriculum for this area of concentration is provided in Appendix 10:

   **Neuropsychology, Neurorehabilitation, and Clinical Neuroscience (NCCN)**
   **(Area Head: Dr Dawn Bowers dawnbowers@phhp.ufl.edu):**

   The NCCN area of concentration provides the student an opportunity to develop skills in neurobehavioral research and clinical assessment of higher cortical function and dysfunction in children and adults. Advanced graduate students select from a variety of courses in neuropsychological assessment of adults and children, human higher brain function, neuroanatomy, physiological psychology, cognitive psychology, forensic neuropsychology, subcortical functions, and seminars on selected advanced topics. In the required practicum, the student obtains advanced clinical experience in the assessment and rehabilitation of higher cortical dysfunction. Rehabilitation experiences are available during the latter part of the student's training once a firm grounding in neuropsychology and treatment concepts has been achieved. These practica are conducted in the Psychology Clinic or in collaboration with affiliate faculty in neurology, speech pathology, or VAMC psychology. The student specializing in neuropsychology can also choose from an extensive network of seminars and meetings including weekly Neuropsychology Brown Bag Seminars, Neurology Grand Rounds, the weekly neuropathology conference, weekly pediatric neurocology conference or regular meetings of the Center for Neurobiological Sciences. Students in neuropsychology become affiliate members of the Center for Neuropsychological Studies, a University center comprised of faculty from the departments of Clinical and Health Psychology, Neurology, Neuroscience, Psychiatry, Neurosurgery, and other disciplines whose main purpose is to further the study of brain-behavior relationships at the laboratory and clinical level. Through this vehicle students gain interdisciplinary exposure to problems, concepts, and techniques in neuropsychology and behavioral neurology. Students concentrating in neuropsychology are expected upon graduation to be skilled in the clinical assessment and treatment of brain disorders, and to be capable of asking empirically testable research questions of relevance to brain function and dysfunction. Area faculty have active research programs in the neuropsychology of emotion, neuropsychology of epilepsy, memory and aging, language and functional MR imaging, working memory in psychopathology, attention and memory disorders in pediatric brain tumors, LD, ADHD, and minor head trauma. In addition, students in this area of concentration conduct research studies related to such neuropathological conditions as dementia, Parkinson's Disease, head trauma, intractable seizures, HIV-related CNS changes, neurodevelopmental disorders, stroke, metabolic disease, neurological effects of cancer treatment and language disorders arising from brain disease. Research and clinical study in a rehabilitative setting (Shands Rehabilitation Hospital; Veterans' Administration) is also available.

   **Postdoctoral level:**

   The description of the program at the Medical College of Wisconsin is provided below:

   “Our program provides a full time training experience that is designed to complete the sequence
of the education and training necessary for independent practice in the specialty of clinical neuropsychology. The program builds on the knowledge and skills acquired at the graduate and internship levels by providing advanced instruction and supervised clinical, research, and teaching experiences designed to achieve the HC exit criteria, i.e., advanced understanding of brain-behavior relationships and advanced competencies in the neuropsychological evaluation, treatment and consultation to patients and professionals in the specialty of clinical neuropsychology. Our training also integrates the fundamentals of basic and cognitive neuroscience, neural development, neuropathology, and neuropsychology to produce advanced knowledge about neurobehavioral systems and behavioral manifestations of pathological states.

The core of the education and training in the program centers around intensively supervised experiences in clinical assessment, treatment and dispositional planning of individuals representing a broad range of neurobehavioral disorders and pathologies. Residents have the opportunity to observe, interview, and study individuals presenting with focal and diffuse brain disease, resolving and degenerative conditions, neural developmental injury and abnormality, episodic and chronic conditions. They have the opportunity to evaluate the affective and personality changes that commonly occur with neurological conditions and those that mimic neurological conditions. They learn about the fundamentals of the neurological exam, neuroimaging, and other neurodiagnostic techniques. They have the opportunity to have these experiences in a learning environment that allows them to correlate interview data, observational impressions, test findings, report from caregivers, medical history, laboratory and neuroimaging findings in order to develop an integrated formulation of the individual’s neurobehavioral condition and likely course, and develop practical recommendations based on their case formulations.

The individualized experiential training is supplemented with observational instruction, didactic coursework, professional mentoring, group supervision during case conferences, and supervision for teaching and scholarly and/or research activities. While experiential training is separated into adult and child tracks, most didactic and case conferences combine adult and pediatric issues in order to emphasize a life-span perspective on brain-behavior relationships and the application of assessment and interventional principles. An emphasis is placed on understanding normal and abnormal neural function, behavior, and development. Residents have multiple opportunities for teaching in didactic forums (Neuropsychology Seminar, Journal Club, Neurology Grand Rounds), instructing and supervising psychology undergraduate and graduate practicum students and junior residents, critically reviewing clinical and scientific literature (Journal Club, manuscript preparation), and designing and participating in basic and clinical research. Databases exist in disorders of brain tumors, deep brain stimulation, dementia, epilepsy, traumatic brain injury, functional neuroimaging, infants and preschoolers, and multiple sclerosis that facilitate completion of research projects in a timely fashion.

7. Select four exemplary doctoral and/or postdoctoral level geographically distributed, and publicly identified programs in psychology in this specialty and provide the requested contact information. If no example programs that are APA accredited are available, please complete the appropriate Attachment (A or B) for the level of the program. If the specialty education and training occurs at both the doctoral and postdoctoral level provide examples of both and not from the same institution.

<table>
<thead>
<tr>
<th>Program One</th>
<th>SDSU-UCSD</th>
<th>Doctoral</th>
<th>X</th>
<th>Postdoctoral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Program</td>
<td>SDSU-UCSD Joint Doctoral Program in Clinical Psychology – San Diego State University</td>
<td>University of California San Diego</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Address: 6363 Alvarado Court, Suite 103
City/State/Zip: San Diego, CA 92120
Contact Person: Robert Heaton, PhD ABPP-CN Telephone No 619-594-2246
E-mail address: psycjdp@mail.sdsu.edu
Website: http://clinpsyc.sdsu.edu/
APA Accreditation: Yes

Program Two University of Florida Doctoral x Postdoctoral Both

Name of University, School, or Institution offering program: University of Florida - Gainesville, FL

Name of Program: Doctoral program in clinical psychology

Address: 1225 Center Dr, PO Box 100165
City/State/Zip: Gainesville, FL, 32610-0165
Contact Person: Rus Bauer, PhD, ABPP-CN Telephone No. (352) 273-6617
E-mail address: rbauer@phhp.ufl.edu
Website: chp@phhp.ufl.edu
APA Accreditation: yes

Program Three Mayo Clinic Doctoral x Postdoctoral Both

Name of University, School, or Institution offering program: Mayo Clinic College of Medicine

Name of Program: Mayo Clinic Postdoctoral Fellowship in Clinical Neuropsychology

Address: Department of Psychiatry and Psychology, 200 First St SW,
City/State/Zip: Rochester, MN, 55905
Contact Person: Nikki Stricker, PhD, ABPP-CN Telephone No. 507-284-5916
E-mail address: machulda.mary@mayo.edu
Website: http://www.mayo.edu/msgme/residencies-fellowships/psychology-post-
Program Four  Boston Children’s Hospital  Doctoral  Postdoctoral x

Both

Name of University, School, or Institution offering program: Boston Children’s Hospital

Name of Program: Post-doctoral Residency Program in Pediatric Clinical Neuropsychology

Address: 300 Longwood Avenue

City/State/Zip: Boston, MA 0211

Contact Person: Celiane Rey-Casserly, PhD ABPP-CN Telephone No. 617-355-6708

E-mail address: celiane.rey-casserly@childrens.harvard.edu

Website: http://www.childrenshospital.org/NeuropsychologyFellowship

APA Accreditation: No

Criterion VIII. Continuing Professional Development and Continuing Education. A specialty provides its practitioners a broad range of regularly scheduled opportunities for continuing professional development in the specialty practice and assesses the acquisition of knowledge and skills.

Commentary: With rapidly developing knowledge and professional applications in psychology, it is increasingly difficult for professionals to deliver high quality services unless they update themselves regularly throughout their professional lives through continuing education mechanisms. A variety of mechanisms may be used to achieve these goals.

1. Describe the opportunities for continuing professional development and education in the specialty practice. Provide detailed examples, such as CE offerings that are available.

Clinical neuropsychologists have a wide range of specific and related continuing education programs available at national meetings, state meetings, and through other local sources. The major national meetings at which a variety of continuing education programs are offered by leading clinicians and researchers include the annual American Psychological Association meeting, the biannual meetings of the International Neuropsychological Society (INS), the annual meeting of the American Academy of Clinical Neuropsychology (AACN) and the annual meeting of the National Academy of Neuropsychology (NAN). NAN also provides distance learning including static learning programs and webinars for CE programs. One of the biannual INS
meetings is held in Europe or Australia, thereby offering educational opportunities from distinguished neuropsychologists from other countries. Samples of continuing education offerings are provided in Appendix 10. Neuropsychology organizations continually review the continuing educations needs of members and modify offerings accordingly.

There are many less formal continuing educational opportunities for professional development. These include presentations and courses offered by related disciplines, Grand Rounds, and programs offered by local neuropsychological societies. Additionally, neuropsychologists have access to peer reviewed domestic and international journals that publish research and practice information of concern to clinical neuropsychologists. A listing of journals in the specialty is provided in Appendix 5. Continuing education credit is available for reading selected journal articles in the Journal of the International Neuropsychological Society, and through the American Academy of Clinical Neuropsychology Psychology Press book series, and AACN/Oxford Workshop Series. The AACN/Oxford Workshop series began publication in 2007 and immediately became among the Oxford University Press’s top-selling neuropsychology titles.

2. Describe the formal requirements, if any, for continuing professional development and education to maintain competence in the specialty

Clinical neuropsychologists must be licensed psychologists in order to practice. Specific requirements for continuing professional development for clinical neuropsychologists is formally defined by state and provincial government agencies that issue the licenses. In some instances specific continuing education programs may be required by the licensing board, but typically a board specifies hour requirements. Continuing education programs usually have to be authorized Category I APA approved programs and therefore all APA requirements must be met by the program provider.

The ABPP has established that member boards, including ABCN should implement Maintenance of Certification (MOC) procedures. ABCN has developed an MOC policy required of those certified after January 1, 2015 and strongly encouraged for those certified prior to that date. In 2016, ABCN initiated MOC procedures. This policy requires board certified neuropsychologists to attain 40 professional development credits in each 10-year cycle. These credits can be obtained in five professional development areas including (1) collaborative clinical consultation, (2) teaching and training, (3) ongoing education, (4) research methodologies and programs, (5) professional leadership. Only 20 credits may be obtained in any one area. Additional detail of the ABCN MOC may be found at https://theabcn.org/maintenance-of-certification/ and on pages 14-18 of the ABCN candidate manual https://theabcn.org/wp-content/uploads/2015/11/abcn-candidate-manual-January-2015.pdf.

3. Describe the minimum expectations, if any, for continuing professional development and education to maintain competence in the specialty.

The psychology license is a generic license in almost all states. States and provinces have laws regulating the practice of psychology, including clinical neuropsychology. In most states and provinces, psychologists are cautioned that they must practice only in their area(s) of competency. This ethical commitment implies that the practitioner of clinical neuropsychology has adequate education and training, including supervised clinical experience in this specialty.

The major credentialing organization is the American Board of Clinical Neuropsychology, affiliated with the American Board of Professional Psychology (ABPP) (http://www.theabcn.org/). This board certifies that an individual is competent to practice clinical neuropsychology. The certification process involves extensive peer review of an applicant's education, knowledge of the subject matter and ethics, and written neuropsychological reports. Although the ABPP certification is not necessary or required to practice clinical neuropsychology, it is a clear
statement of competency. Less formal identification of competency is achieved by peer review and qualifications requirements imposed on clinicians by hospitals, insurance companies, and employers. Organizations outside of ABPP, also provide credentialing in clinical neuropsychology (American Board of Neuropsychology).

**Criterion IX. Effectiveness. Petitions demonstrate the effectiveness of the services provided by its specialist practitioners with research evidence that is consistent with the APA 2005 Policy on Evidence-based Practice.**

**Commentary:** A body of evidence is be presented that demonstrates the effectiveness of the specialty in serving specific populations, addressing certain types of psychological, biological and social behaviors, or in the types of settings where the specialty is practiced.  

PLEASE NOTE: If the same article illustrates more than one of these items, it may be referenced under each applicable category. Evidence should include the most current available published references in each area (e.g., books, chapters, articles in refereed journals, etc.) While reliance on some on classic references is acceptable, the majority of references provided should be from last five years.

1. Provide at least five psychological manuscripts published in refereed journals (or equivalent) that demonstrate the efficacy of the specialty's services for dealing with the types of clients or populations (including groups with a diverse range of characteristics and human endeavors) usually served by this specialty. Summarize and discuss the relevance of the findings of the studies, specify populations, interventions, and outcomes in relation to the specialty practice.

References on the efficacy of neuropsychological services for dealing with types of clients or populations.

Clinical neuropsychology has contributed substantially to the understanding of neuropsychological functioning and disorders across the lifespan. In the elderly, neuropsychological assessments can ascertain early stages of dementia, and distinguish types of dementia and dementia from psychiatric/psychological disorders/normal aging. Clinical neuropsychology findings help determine treatment regimens that are likely to be most effective, given the diagnosis, types of impairment, and preserved functions. For children, neuropsychologists distinguish the impact of acquired or congenital disorders in the context of developmental change. Clinical neuropsychologists evaluate a child’s neuropsychological functioning and discuss risks and protective factors through development to predict future challenges.

**Adult**


**Pediatric**


2. Provide at least five psychological manuscripts published in refereed journals (or equivalent) that demonstrate the efficacy of the specialty's services for dealing with the types of psychological, biological, and/or social problems usually confronted and addressed by this specialty. Summarize and discuss the relevance of the findings of these studies, particularly their measures and outcome results.

References on neuropsychological services dealing with psychological, biological, and social problems.
These references demonstrate the efficacy of clinical neuropsychology in addressing major psychiatric disorders, acquired brain injury, problems of development, aging and degenerative disease, impact of medical disease (e.g., HIV), and critical social problems. The impact of neuropsychological functioning on outcomes in these disorders advances understanding of psychological, biological and social problems and contributes to the development of targeted, effective interventions.


3. Provide at least five psychological manuscripts published in refereed journals (or equivalent) that demonstrate the efficacy of the specialty's procedures and techniques when compared with services rendered by other specialties or practice modalities. Summarize and discuss the relevance of the findings of these studies, particularly their measures and outcome results and the comparisons to other specialties or modalities.

References of efficacy of neuropsychological services when compared to services provided by other specialties or practice modalities.

Neuropsychologists provide distinctive services in the assessment, diagnosis, management, and rehabilitation of neuropsychological conditions. The ability to assess cognitive impacts, associate those with neurological substrates, explain this to patients and families, and design treatments to address the behavioral, functional and social impacts is what distinguishes this specialty. Neuropsychological measures are often more sensitive than other technologies (e.g. neuroimaging) in identifying disease. These same measures are more useful in predicting day to day challenges and in identifying targets for intervention. The following studies document the efficacy of integration of brain-behavior relationships, psychological, and social-environmental variables in expanding knowledge of brain insults across the lifespan and contributing to interventions and
outcomes.


4. Provide at least five psychological manuscripts published in refereed journals (or equivalent) that demonstrate the efficacy of the specialty's services for dealing with the types of settings or organizational arrangements where this specialty is practiced. Summarize and discuss the relevance of the findings of these studies in relation to the specialty practice.

Clinical neuropsychologists provide effective services in a range of organizational settings. Specialized skills in consultation in the area of neuropsychology support the implementation of neuropsychologically informed formulation and intervention. Specific settings include integrated health care, specialty care, educational, forensic, military and rehabilitation contexts.
Integrated health care:

Specialty health care:

Educational:

Forensic:
Military:

Rehabilitation:

Criterion X. Quality Improvement. A specialty promotes ongoing investigations
and procedures to develop further the quality and utility of its knowledge, skills, and services.

**Commentary:** The public interest requires that a specialty provides the best services possible to consumers. A specialty, therefore, continues to seek ways to improve the quality and usefulness of its practitioners' services beyond its original determination of effectiveness. Such investigations may take many forms. Specialties promote and participate in the process of accreditation in order to enhance the quality of specialty education and training. Petitions describe how research and practice literatures are regularly reviewed for developments which are relevant to the specialty's skills and services, and how this information is publicly disseminated.

1. Provide a description of the types of investigations that are designed to evaluate and increase the usefulness of the skills and services in this specialty. Estimate the number of researchers conducting these types of studies, the scope of their efforts, and how your organization and/or other organizations associated with the specialty will act to foster and communicate these developments to specialty providers. Provide evidence of current efforts in these areas including examples of needs assessed and changed that resulted.

In the most recent survey of the combined members of AACN, NAN and SCN, (Sweet, Benson, Nelson and Moberg, 2015) 807 and 865 of the 1777 respondents reported engaging it at least some funded and/or unfunded research, respectively. The mean hours per week of funded research was 4.3 hours and the mean hours per week of unfunded research was 3.0. The range of weekly hours spent in research was predictably from no time to full time (0-60 hours). If these respondents are representative of the larger field, this suggests that nearly half of all clinical neuropsychologists engage in some forms of research on a weekly basis, and that the field does adhere to its desired scientist-practitioner model. Neuropsychologists are actively involved in studies that serve to expand knowledge of brain behavior relationships, to integrate contributions of social, cultural and contextual factors, and validate applications to everyday life. These concerns are primary goals of neuropsychological investigation and the scope of these efforts is extremely broad. Clinical neuropsychologists develop and validate procedures for evaluating cognitive, affective, social, emotional, and executive functioning. In addition, clinical neuropsychologists participate in development and revisions of commercial psychological tests and instruments, as authors, researchers, consultants, field testers, and members of focus groups. Studies of the ecological validity of concepts, applications, procedures, and interpretations are published regularly in the literature and scientific advances in these areas are integrated into practice. Neuropsychology organizations are committed to fostering outcome studies and evidence based research and communicating findings to members. Neuropsychologists participate in continuing education in large numbers, as evidenced by the expansion of the AACN Annual Workshop meetings, and strong attendance at workshop offerings at NAN and INS annual meetings. These workshops include the latest evidence, techniques, and applications in a range of areas presented by experts in the field (Appendix 1).

The past decade has seen a strong been initiative in the field to strengthen our claims to be a evidence based practice area. Examples of ecological validity, effectiveness, evidence-based and innovation publications are provided below:

The focus on evidence based practice and accountability can be seen in published literature and professional meeting offerings. For example, the general themes of recent and upcoming National Academy of Neuropsychology Annual Conferences relate to this focus:

NAN 2016: From Isolation to Integration is a vehicle to promote the science and accountability that forms the foundation for clinical practice and provide education on clinical practice both now and the future.

NAN 2017: Neuropsychological Practice: A Clinician’s way forward is the theme of 2017’s NAN Conference. This conference will provide up to date education on current clinical practice and practice standards for the future for both individual practice and population based practices.

2. Describe how the specialty seeks ways to improve the quality and usefulness of its practitioners’ services beyond its original determinations of effectiveness.

The focus on evidence base, outcomes and efficacy is expanding in neuropsychology. Neuropsychology organizations have specifically emphasized this area, recognizing that neuropsychologists are being increasingly called upon to demonstrate the value and efficacy of their services. The American Academy of Clinical Neuropsychology has established the AACN Outcome Studies Grant Program that supports research to evaluate and document outcomes of neuropsychological services, and to increase access to neuropsychological services among the public by increasing awareness of those services and their outcomes. Grant applications are specifically invited for studies assessing the utility and cost effectiveness of neuropsychological services and the initial focus areas include attention-deficit/hyperactivity disorder, dementia, traumatic brain injury, stroke, and epilepsy. The National Academy of Neuropsychology also supports a clinical research grant program targeted to improving quality. Projects with potential to assist the practicing neuropsychologist in daily clinical work are selected. Priorities include projects that produce new clinically relevant knowledge, address perceived deficiencies in the field, deal with professional issues, identify new uses and applications of neuropsychological procedures, or target Issues of diversity. Directly or indirectly this emphasis is leading to the development of new information to enhance quality in our field.


3. Describe how the research and practice literature are regularly reviewed for developments which are relevant to the specialty's skills and services, and how this information is publicly disseminated. Give examples of recent changes in specialty practice and/or training based upon this literature review.

Clinical neuropsychologists produce, disseminate, and apply new developments, techniques, and knowledge relevant to the specialty’s skills and services. Three example of where recent literature and practice changes have lead to changes in training and practice include the move within psychology to clearer definition of competencies and competency based training, the growing recognition of issues in symptom validity measurement in neuropsychological assessment and the proliferation of computer based assessment. In each case these developments have lead to important policy papers and changes to education and practice.

Competency based training: The movement towards competency based training has been embraced in Clinical Neuropsychology. There has been recognition that our Houston Conference guidelines specified well the ‘How’ of training but not so much the ‘What’ of training. As noted elsewhere, CNS has led the efforts to establish a competency document for entry into clinical psychology based especially on the Rey-Casserly et al publication below. That seminal paper has led to several other key developments as reflected in the additional citations.


Assessment of effort and response bias: Neuropsychologists have integrated scientific findings in this area into clinical practice over the recent decades. Recently the role of symptom validity testing in social security disability determinations became the subject of Congressional hearings. The neuropsychology community was deeply involved in this issue and has produced several key publications in this arena. There is extensive recent literature and workshops in this area are well-attended and help to disseminate these developments in clinical practice.

Computer based neuropsychological assessment devices are proliferating. Some offering automated, unsupervised interpretations of performance. In 2012 AACN and NAN offered a position paper on standards for the use of this approach (see Bauer et. al, below). This paper has influenced approaches of validation and implementation of this emerging aspect of neuropsychological and psychological practice.


4. This criterion includes two components: one focusing on past activities around accreditation (X.4.a), and the other on future activities around accreditation (X.4.b).

For X.4.a, describe how the specialty has promoted and participated in the process of accreditation in order to enhance the quality of specialty education and training. Also, indicate how many programs in this specialty have been accredited at the doctoral and/or postdoctoral level.

Clinical neuropsychology is recognized as a specialty with completion of training at the postdoctoral level. Accreditation is available for postdoctoral residencies in clinical neuropsychology by the Commission on Accreditation of the American Psychological Association. There are currently 23 accredited postdoctoral residencies in the specialty up from
13 at the time of last renewal. The Association of Postdoctoral Programs in Clinical Neuropsychology’s mission is to support quality training in clinical neuropsychology. Member programs need to endorse the Houston Conference training standards and complete a self-study to join APPCN. APPCN members meet regularly to discuss issues of training and enhancing quality, in preparation for applying for accreditation. Neuropsychologists also participate in quality assurance, serving as site visitors for accreditation and on the Commission on Accreditation. With the reconfiguration of the Commission on Accreditation, the Council of Specialties nominates a member with particular expertise in the area of specialties.

For X.4.b, describe how the specialty will promote and participate in the process of accreditation in the future in order to enhance the quality and sustainability of specialty education and training. Also, explain how the future accreditation support activities will be consistent with the Education and Training Guidelines: A Taxonomy for Education and Training in Professional Psychology Health Service Specialties (see: http://www.apa.org/ed/graduate/specialize/taxonomy.pdf) and will be sustained (e.g., training CoA site reviewers with specialty expertise, sponsoring CoA self-study workshops, fostering the development or ongoing operation of a specialty training council, administrative agreements and protections, financial support, etc.). Explain how these activities will result in an increase in the number of specialty programs that are accredited at the doctoral and/or postdoctoral level.

CNS, working with affiliated training organizations including the Association of Doctoral Education in Clinical Neuropsychology (ADECN, www.adecn.org), the Association for Internship Training in clinical neuropsychology (AITCN, www.aitcn.org and APPCN (website above) contributed to the development and endorsement of the clinical neuropsychology specific taxonomy (see Appendix 9) for programs contributing to the training of clinical neuropsychology specialists. These were submitted to the Council on Specialties and are posted on the CNS page of the COSPP website.

Criterion XI. Guidelines for Specialty Service Delivery. The specialty has developed and disseminated guidelines for practice in the specialty that expand on the profession's general practice guidelines and ethical principles.3

Commentary: Such guidelines are readily available to specialty practitioners and to members of the public and describe the characteristic ways in which specialty practitioners make decisions about specialty services and about how such services are delivered to the public

1. Describe the specialty-specific practice guidelines for this specialty. Please attach. How do such guidelines differ from general practice guidelines and ethics guidelines? (In this context, professional specialty guidelines refer to modes of conceptualization, identification and assessment of issues, and intervention planning and execution common to those trained and experienced in the practice of the specialty. Such professional guidelines may be found in documents or websites including, but not limited to, those bearing such a title or as described in a variety of published textbooks, chapters, and/or articles focused on such contents.)

Specialty practice guidelines and positions papers have been developed by several CNS affiliated organizations. These documents are generated specifically from and for the specialty organizations and differ from general practice guidelines in their focus on specialty specific training and competence or practice intensive issues like scope of neuropsychological practice or validity testing issues.
American Academy of Clinical Neuropsychology guidelines and position papers can be found at: https://theaacn.org/position-papers-and-policies/#gsc.tab=0. Thirty-five documents can be found here, some that document the survey of professional practice issues undertaken each 5 years. In addition position papers on third party observers, symptom validity testing, role of neuropsychologists in military TBI assessment, use of serial assessment and other issues can be found here. Important the 2007 AACN practice guidelines for neuropsychological assessment and consultation can be found at the above reference website.

The 18 NAN guidelines and position papers can be found at http://nanonline.org/nan/Professional_Resources/Position_Papers/NAN/ ProfessionalResources/Position_Papers.aspx?hkey=71602191-716a-4375-8eb8-4b4e6a071e3a. These include guides on informed consent, test security, use of technicians, third party observers, symptom validity testing and other issues.

Importantly, AACN, and NAN have collaborated in developing and disseminating important policy and guideline documents, including most recently a document on the use of computerized neuropsychological testing devices; http://www.tandfonline.com/doi/abs/10.1080/13854046.2012.663001

As it is constrained by APA organizational policies, SCN does not generate specialty specific practice guidelines but SCN members have made important contributions to APA guidelines including guidelines for: professional practice with older adults, the evaluation of dementia and cognitive aging, test user qualifications, and clinical supervision in health service psychology.

2. How does the specialty encourage the continued development and review of practice guidelines?

As noted above, the specialty has developed guidelines that address specific topics relevant to clinical neuropsychology science and practice. Neuropsychologists also participate in developing APA guidelines on specific topics that are relevant to the specialty, such as assessment of competence. These are often developed and endorsed by several neuropsychology organizations as policy statements. To facilitate this on-going process as well as serve as an advocacy ‘strike-force’ AACN, NAN and SCN developed the Inter-organizational Practice Committee (IOPC). CNS and IOPC coordinate activities, with CNS focusing especially on issues of specialty education, training and competence and the IOPC focused specifically on issues of practice and advocacy. The IOPC has been active in a variety of practice issues including guidelines development, in coordination with the APA Practice Organization has developed an active advocacy model:

3. Describe how the specialty's practitioners assure effective and ongoing communication to members of the discipline and the public as to the specialty's practices, practice enhancements, and/or new applications.

Neuropsychologists and neuropsychology organizations are committed to fostering human welfare. There is active communication of each organization with its memberships via their websites (www.theaacn.org, www.nanonline.org and www.scn40.org). There is communication among clinical neuropsychologists on listservs of the various organizations. AACN has a e specifically for board certified members but also an second list serve open to the broader community of student and early career neuropsychologists that are not yet boarded. SCN (Division 40) offers four listservs that are open to all interested individuals: the Association of Neuropsychology Students in Training (ANST) listserv, the Women in Neuropsychology (WIN) listserv, Ethnic Minority Affairs (EMA) Interest
Group listserv, and the SCNNEURONEWS listserv.

Each organization hosts an annual meeting, (SCN’s is embedded in the annual APA conference). As noted professional affairs committees within and across SCN, NAN and AACN address practice and consumer issues. These workshops and meetings are well attended. The continuing education committees of the various organization monitor needs and foster dissemination of knowledge and new developments affecting practice.

4. How does the specialty communicate its identity and services to the public?
Neuropsychologists develop specialized skills in consultation to various publics, including consumers, patients, agencies, and families. They participate in support groups, community education activities, and in-service trainings at schools, providing guidance as well as communicating about the specialty and its services. Division 40 publishes brochures that are readily available, describing neuropsychological services for adults and children. The National Academy of Neuropsychology publishes similar resources. Neuropsychologists are involved in advocacy, publicizing neuropsychological needs and advocating for access to care at the federal and local levels.

In addition to their internet websites, AACN, NAN, and SCN have each launched Facebook and Twitter (and Linkedin) accounts. These efforts use social media to communicate with the public about our specialty generally and specifically address issues in popular media about which neuropsychological expertise is germane. These sites provide information of import regarding these organizations and will also link to trending medias topic and then solicit commentary from a neuropsychology expert in that area. Among the activity at these sites are commentaries on sports concussion, chronic traumatic encephalopathy, PTSD and blast injuries in veterans, progress in Alzheimer’s disease, autism and many other topics. See

- https://www.facebook.com/AmericanAcademyofClinicalNeuropsychology
- https://twitter.com/TheAACN
- https://www.facebook.com/NationalAcademyofNeuropsychology
- https://twitter.com/NANneuropsych
- https://www.facebook.com/division40?sk=wall
- https://twitter.com/APADivision40

Criterion XII. Provider Identification and Evaluation. A specialty recognizes the public benefits of developing sound methods for permitting individual practitioners to secure an evaluation of their knowledge and skill and to be identified as meeting the qualifications for competent practice in the specialty.

Commentary: Identifying psychologists who are competent to practice the specialty provides a significant service to the public. Assessing the knowledge and skill levels of these professionals helps increase the ability to improve the quality of the services provided. Initially practitioners competent to practice in the specialty may simply be identified by their successful completion of an organized sequence of education and training. As the specialty matures it is expected that the specialty will develop more formal structures for the recognition of competency in practitioners.

1. Describe the formal peer review-based examination process of board certification including its use of a review and verification of the individual’s training, licensure, ethical conduct status, and a peer assessment of specialty competence.
The American Board of Clinical Neuropsychology (ABCN) offers a Diploma in Clinical Neuropsychology under the auspices of the American Board of Professional Psychology (ABPP). In order to obtain diplomate status, a candidate must a) pass a credentials review regarding training in applied psychology and Clinical Neuropsychology. This credentials review ensures appropriate training in APA/CPA accredited doctoral and internship programs, appropriate post-doctoral specialty training, and appropriate licensure b) submit and pass the review of a work sample in Clinical Neuropsychology, c) pass a written examination in Clinical Neuropsychology, and d) pass an oral examination administered by an ABCN examining committee, during which they are examined not only on neuropsychology knowledge and skill but also on ethical knowledge and practice. Board certification is now seen as the next step beyond licensing for early career clinical neuropsychologists. ABCN is a very active board and there are currently almost 1200 individual certified by ABCN and approximately another 300 in some stage of the process of becoming boarded. Board certification is also available outside of the American Board of Professional Psychology by the American Board of Professional Neuropsychology (ABN), which has aligned the structure of its certification process with that of the ABCN.

2. Describe how the specialty educates the public and the profession concerning those who are identified as a practitioner of this specialty. How does the public identify practitioners of this specialty?

Public education efforts are undertaken by clinical neuropsychology organizations and individual neuropsychologists. The Professional Affairs Committee of SCN of APA makes efforts to educate the public and other professionals regarding Clinical Neuropsychologists. For example, a brochure has been devised for distribution to potential clients and other professionals (Appendix 3). Professional affairs committees of other neuropsychology organizations have similar initiatives.

The ABCN collaborates with the AACN in efforts to educate the public regarding the existence of its Diploma as an indicator of competence to practice Clinical Neuropsychology. These organizations follow the rules specified by the American Board of Professional Psychology about how specialty credentials are portrayed to the public.

Neuropsychologists certified by the ABCN can be identified through ABPP (www.abpp.org) or AACN (http://www.theaacn.org/), directories of board certified neuropsychologists.

3. Estimate how many practitioners there are in this specialty (e.g., spend 25% or more of their time in services characteristic of this specialty and provide whatever demographic information is available) and how many are board certified through the process described in item 1.

Estimates can be obtained by examining the membership of organizations in the specialty. As of 7/1/2016 SCN had approximately 4,577 members. However, this list does not include all or only those who practice clinical neuropsychology. The National Academy of Neuropsychology has over 3159 active members. At the close of 2015, AACN had over 1800 members, including 944 Active, 53 Senior, 465 Affiliate, and 340 Student members. This include were 1111 ABPP board certified clinical neuropsychologists in 48 states and the District of Columbia, and four provinces in Canada. This total includes the 69 new Academy members who were awarded ABCN board certification during 2015. Additionally, a non-ABPP board, the American Board of Professional Neuropsychology (ABN) has 400 certified members as of Oct 2016.
Public Description:

An important component of the recognition process is to develop a public description of the specialty that can be used to inform the public about the specialty area. Please develop a brief description of the specialty by responding to the question below (total combined word limit for all five questions must not exceed 400 words). This provides the foundation for what will appear on the APA website upon recognition of the specialty and should be understandable to the general public (wording should not exceed an eighth-grade level). Descriptions will be edited for consistency to conform to the CRSPPP website standards.

1. Provide a brief (2-3 sentences) definition of the specialty.

Clinical neuropsychology is a specialty field within clinical psychology, dedicated to understanding the relationships between brain and behavior, particularly as these relationships can be applied to the diagnosis of brain disorder, assessment of cognitive and behavioral functioning, and the design of effective treatment. (AACN Website)

2. What specialized knowledge is key to the specialty?

Expertise in how behavior and skills are related to brain structures and systems. (SCN brochure).

3. What problems does this specialty specifically address?

Neuropsychological evaluations are requested specifically to help understand how the different areas and systems of the brain are working. Testing is usually recommended when there are symptoms or complaints involving memory or thinking. This may be signaled by a change in concentration, organization, reasoning, memory, language, perception, coordination, or personality. The change may be due to any of a number of medical, neurological, psychological, or genetic causes. (SCN brochure)

4. What populations does this specialty specifically serve?

Clinical neuropsychology serves people across the entire age and developmental span whenever there are concerns about brain function. This can range from developmental concerns in infants, academic challenges in childhood, adolescence and early adulthood, work and social challenges in adulthood and concerns about declining function in old age. Some of the conditions neuropsychologists routinely deal with include developmental disorders like autism, learning and attention disorders, concussion and traumatic brain injury, epilepsy, brain cancer, stroke and dementia.

5. What are the essential skills and procedures associated with the specialty?

The neuropsychological evaluation consists of gathering relevant historical information, a neuropsychological examination, analysis and integration of data and findings, and feedback to the referral source. History is obtained through reviewing medical and other records, and through interview with the patient. With the patient’s permission, family members or other knowledgeable persons may be interviewed and asked to share their perceptions and perspective on important aspects of the history and symptoms. The examination typically consists of the administration of standardized tests using oral questions, paper and pencil, computers, the manipulation of materials such as blocks and puzzles, and other procedures. Depending on the scope and intent of the evaluation, testing may focus on a wide range of cognitive functions including attention, memory, language, academic skills, reasoning and problem solving, visuospatial ability, and sensory-motor skills. The neuropsychologist may also administer tests and questionnaires concerning psychological aspects of mood, emotional style, behavior, and personality. (AACN Website)
Appendices

Appendix 1 Bylaws.

Bylaws Of the Clinical Neuropsychology Synarchy
Article I
Name of Organization

The name of the organization is Clinical Neuropsychology Synarchy.

Article II
Clinical Neuropsychology Synarchy Mission

The purpose of the Clinical Neuropsychology Synarchy shall be to:

1. Support and maintain the recognition of clinical neuropsychology as specialty in the professional psychology

2. Facilitate communication across clinical neuropsychology organizations.


4. Represent the specialty of Clinical Neuropsychology to the Council of Specialties in Professional Psychology.

Article III
Membership

1. The formal membership of the Clinical Neuropsychology Synarchy shall consist of one representative from co-sponsoring US national organizations. Consistent with Article V.I of the Council of Specialty bylaws, the minimum membership shall include, “the ABPP Academy in that specialty, the ABPP Board in that specialty, the APA Division(s) in that specialty, and the organization of education and training directors in that specialty at the doctoral internship, postdoctoral residency, and continuing education levels.” Said organizations will work to the betterment of Clinical Neuropsychology as a specialty within professional psychology and support the purposes of the CNS.

2. Organizations seeking representation on the Clinical Neuropsychology Synarchy must be accepted by existing members unanimously by vote. Current membership shall be listed in an Appendix to the Bylaws.
3. Dues collecting voting members of the CNS will contribute equally to the operating expenses of CNS.

4. Each representative shall be appointed for a term of one year and may serve up to four consecutive terms. All appointments begin January 1.

5. Representatives to the Clinical Neuropsychology Synarchy commit themselves to regular attendance at meetings and participation. Appointment of a new representative may be required by the Clinical Neuropsychology Synarchy in the case of insufficient participation by a representative.

Article IV
Officer(s)

1. The Clinical Neuropsychology Synarchy shall have a chair elected by majority vote of the formal members. If the Chair is elected from one of the member organizations, that organization shall fill that seat with a new representative.

2. The chair shall serve a four-year term commencing on January 1. The Chair can be re-elected for a second term.

3. On matters requiring a vote, the Chair shall only vote in the event of a tie.

Article V
Meetings

1. Meetings must be held at least once a year, and can be held telephonically.

2. Meetings may be attended by liaisons and observers at the invitation of the Clinical Neuropsychology Synarchy.

3. The Clinical Neuropsychology Synarchy may address business matters outside of the regularly scheduled meetings. Votes may be conducted by e-mail, telephone, or mail.

Article VI
Representative to the Council of Specialties in Professional Psychology

The Chair of Clinical Neuropsychology Synarchy shall serve as the Clinical Neuropsychology Representative to the Council of Specialties in Professional Psychology or may assign a representative to serve on her or his behalf. The term of this Representative shall be four years. Re-election for one consecutive term is possible.
Partial terms are not considered a full-term, so that only full-terms are considered within the maximum length of representation.

Article VII
Amendments
Amendments to these Bylaws may be made by a majority vote of the members of the Clinical Neuropsychology Synarchy. Mail ballots may be utilized providing a discussion of the matter had taken place at a prior meeting and allowing a twenty-day response.

Last Admended 6/1/2018
Bylaws Appendix (Membership)

As of July 1, 2018 Members of the CNS includes a representative from the following organizations:
- Society for Clinical Neuropsychology*
- National Academy of Neuropsychology*
- American Academy of Clinical Neuropsychology*
- Hispanic Neuropsychology Society*
- American Board of Professional Neuropsychology*
- American Board of Clinical Neuropsychology
- Association of Post-Doctoral Programs in Clinical Neuropsychology
- Association of Internship Training in Clinical Neuropsychology

*Organizations that contribute to the operational expenses of CNS
Appendix 2: SCN Newsletter Page 1.

See full document at:

THE SOCIETY FOR
CLINICAL NEUROPSYCHOLOGY
Division 40 of the American Psychological Association

Volume: 37, Number: 1
Winter/Spring 2018

SCN Executive Committee
2017-2018

President
Doug Johnson-Greene  2017-18
President Elect
Michael McCrea  2017-18
Past President
Mark Rondi  2017-18
Secretary
Amy Jak  2015-18
Treasurer
Kevin Duff  2012-18*

Members at Large
Lisa Delano-Wood  2017-20
April Thomas  2015-18
Teresi Deer  2016-19

Council Representatives
Cheryl Silver  2015-20*
Rodney Vanderploeg  2016-18
Heather Belanger  2016-18
Cynthia Kubi  2017-19

Chairs of Standing Committees
Membership
Jennifer Koo  2016-18

Fellow
Dawn Bowers  2016-19

Program Chair
Sara Weisenbach  2017-18

Program Co-Chair
Diloma Okonkwo  2017-18

Election
Mark Rondi  2017-18

Conflicts of Interest
Greg Lamberty  2016-18

Chairs of Ad Hoc Committees
AIP Relations
Mike Schoenberg  2015-18

Publications and Communications
David Kaufman  2017-20

Finance Committee
Kevin Duff  2015-18

Chairs of Umbrella Committees
Education Advisory
Scott Spering  2017-20

Scientific Advisory
Tricia Zawacki King  2017-20

Practice Advisory
Maggie Lancia  2015-18

Public Interest Advisory
Becky Ready  2014-20*

A LETTER FROM THE EDITOR

Dear members of the Society for Clinical Neuropsychology,

It is my pleasure to bring you the Winter/Spring 2018 edition of the Division 40 Newsletter.

Even as a mid-career neuropsychologist, I still rely on many of the time-honored paper and pencil tests that I learned in graduate school to evaluate the functional skills that we have come to view as essential to our assessment and treatment of the patient’s that we see. While new versions of our psychological and neuropsychological tests have surely brought us improvements in psychometric properties and normative data, as well as new ways to conceptualize of brain injury and disease—in my hospital-based clinical practice in Omaha, our technological “advances” primarily consist of the computerized administration of sustained attention tasks and the computer scoring programs that save us time.

Every year, I look forward to attending our professional conferences, where the latest advances in research and ideas are unraveled by the pioneers of our field. Yet the challenge remains: how can those of us who work as true clinical neuropsychologists not only integrate technological and methodological advances in science into our practice, but also promote innovations in assessment, intervention, prevention, and improvement of cognitive function?

In 2016, a major advancement occurred, as AANN President, Dr. Karen Portal and the AANN Board of Directors presented the groundwork for re-imagining clinical neuropsychology as more than just a consumer of technology—rather, as a full-fledged partner in the interdisciplinary advancement of brain science and medicine.

As described in Portal’s State of the Academy Report delivered at the 15th Annual AANN Meeting in Boston (and published in TCN, 32[1]), the development of the Disruptive Technology Initiative was intended to support and encourage conversations within the Academy about (1) breaking down traditional silos in our educational models so the next generation of neuropsychologists embraces engineering, coding, and biotechnology, (2) reimagining our current set of nineteenth century assessment tools, to potentially include assessment through novel type of platforms such as big data and the internet of everyday things, and (3) re-envisioning ourselves informing and educating rather than reacting to technology innovations in medicine. (Portal, 2016, p. 3)

In my first year as SCN Newsletter Editor, I am honored to bring you two pieces
Appendix 3: Links to SCN Brochures on Neuropsychology Services

Adult Neuropsychology-English

Adult Neuropsychology-Spanish

Adult Neuropsychology-French

Pediatric Neuropsychology-English

Pediatric Neuropsychology-Spanish

Pediatric Neuropsychology-French

Example page:

- padre un niño y las áreas del cerebro que están afectadas. Por ejemplo, las pruebas pueden ayudar a determinar entre un déficit de atención y una depresión, o pueden determinar si un ritmo del lenguaje se debe a un problema de producción del habla, comprensión o expresión del lenguaje, problemas en el social, autismo o ritmo cognitivo. Es posible que el neuropsicólogo trabaje con su médico para combinar los resultados de las pruebas médicas, como estudios de imágenes del cerebro o análisis de sangre, con el fin del diagnóstico del problema de su hijo.

- lo que es aún más importante, la realización de las pruebas permite entender mejor la conducta y el aprendizaje del niño en la escuela, en el hogar y en la comunidad. La evaluación puede servir de guía a los maestros, terapeutas y a usted mismo para que pueda ayudar mejor a su hijo a alcanzar su potencial.

¿Qué es lo que debo esperar?

Una evaluación neuropsicológica habitualmente incluye una entrevista con los padres para tomar el historial del niño, la observación de una entrevista con el niño y la realización de pruebas. Las pruebas involucran lápiz y papel y actividades manuales, cuestionarios y, a veces, la comprensión. A los padres se les puede pedir que llenen cuestionarios sobre el desarrollo y conducta de su hijo. Muchos neuropsicólogos emplean examenares entrenados, o personal auxiliar, para asistirles en la administración y calificación de las pruebas, de manera que el niño puede ver a más de una persona durante la evaluación. Por lo general, los padres no se encuentran en el cuarto o sala durante las pruebas, aunque es posible que estén presentes si se trata de niños muy pequeños. El tiempo requerido depende de la edad y del problema del niño. Asegúrese de que el niño duerma bien la noche antes de asistir a las pruebas. Si su hijo usa lentes o un audífono o cualquier otro aparato, no olvide traerlo con usted. Si su hijo tiene necesidades especiales en cuanto al lenguaje (o idioma), haga favor de informarle al neuropsicólogo. Si su hijo está tomando estimulantes recetados, como Ritalín, otros medicamentos, hable con el neuropsicólogo con anticipación para coordinar la hora de la dosis con las pruebas. Si a su hijo le han administrado pruebas previas en la escuela, tiene un plan educativo individual o expediente médico anterior, baje favor de traer consigo o enviar esta información y expediente al neuropsicólogo para que lo revise.

Lo que usted le explique a su hijo respecto a esta evaluación dependerá de cuánto el niño sea capaz de comprender. Hágalo en forma sencilla y breve y refórtelo con explicación de sí mismo, lo explicando que las pruebas no implican ninguno "problema". Dígale a su hijo que usted está tratando de entender su problema para mejorar las cosas. También puede decirle que "hace buena idea saber todas las preguntas" y que lo importante es "provenir lo mejor de su parte". Probablemente la evaluación neuropsicológica le parecerá interesante a su hijo, y la información detallada que se reúne mediante ella contribuirá al cuidado de su hijo.
Appendix 4: Competency Model

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.

References


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

<table>
<thead>
<tr>
<th>Cluster/Foundation Domain</th>
<th>Competency encompassed by domain</th>
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</thead>
<tbody>
<tr>
<td><strong>Scientific Knowledge and Methods</strong></td>
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<tr>
<td>The clinical neuropsychologist:</td>
<td></td>
</tr>
<tr>
<td>• demonstrates knowledge of the clinical and cognitive neurosciences, including neurology, neuroanatomy, neurobiology, neuropathology, brain development, and neurophysiology.</td>
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<tr>
<td>• maintains currency with key scientific developments in fields related to practice.</td>
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<tr>
<td>• demonstrates and applies knowledge of scientific and scholarly developments in clinical neuropsychology.</td>
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<tr>
<td><strong>Evidence Based Practice</strong></td>
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<tr>
<td>• understands key signs and symptoms of disease processes relevant to practice and how patient characteristics (e.g., demographic factors, comorbidities) affect their expression.</td>
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<td>• understands age-related changes in brain functioning and behavior across the lifespan.</td>
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<td>• understands the scientific basis for assessment strategy, including test selection, use of appropriate normative standards, psychometric and operating characteristics, and test limitations.</td>
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<tr>
<td>• understands patterns of incidence, prevalence (i.e., base-rate), and natural course of conditions of interest in neuropsychology.</td>
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<tr>
<td>• appreciates decision-making strategies and their applications in differential diagnosis.</td>
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<td>• knows the scientific basis for diagnostic conclusions across a range of neuropsychological disorders.</td>
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<tr>
<td>• incorporates and uses outcome research in neuropsychology in guiding assessments and formulating interventions, integrating patient and contextual factors.</td>
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</table>
• 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>
<thead>
<tr>
<th>Domain</th>
<th>Competency encompassed by domain</th>
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</thead>
<tbody>
<tr>
<td>Knowledge-based</td>
<td>The clinical neuropsychologist will have knowledge of:</td>
</tr>
<tr>
<td>competencies</td>
<td>• neuropsychology of behavior, including information processing theories, cognitive/affective neuroscience, social neuroscience, cultural neuroscience, and behavioral neurology.</td>
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<tr>
<td></td>
<td>• patterns of behavioral, cognitive, and emotional impairments associated with neurological and related diseases and conditions that affect brain structure and functioning.</td>
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<tr>
<td></td>
<td>• neurochemistry, neuropsychopharmacology, neuroendocrinology, and related areas relevant to practice.</td>
</tr>
<tr>
<td></td>
<td>• neurodiagnostic techniques relevant to practice.</td>
</tr>
<tr>
<td></td>
<td>• effects of common systemic medical illnesses on brain functioning and behavior.</td>
</tr>
<tr>
<td></td>
<td>• patterns of behavioral, cognitive, and emotional impairments associated with psychiatric disorders.</td>
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<tr>
<td></td>
<td>• potential influences of motivational factors and assessment context on test performance.</td>
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<tr>
<td></td>
<td>• medications used for common medical diseases and psychiatric disorders and their effects on brain functioning and behavior.</td>
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<tr>
<td></td>
<td>• 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).</td>
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<tr>
<td></td>
<td>• 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.</td>
</tr>
<tr>
<td>Applied</td>
<td>The clinical neuropsychologist will be able to:</td>
</tr>
<tr>
<td>competencies</td>
<td>• analyze and clarify referral questions based on the context, professional roles, and the patient/examinee presentation.</td>
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<tr>
<td></td>
<td>• gather information key to addressing the referral question, including interview(s), targeted behavioral observations, and review of records.</td>
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<td></td>
<td>• 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.</td>
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<td></td>
<td>• appropriately administer and score tests and measures.</td>
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<td></td>
<td>• interpret assessment results, with formation of an integrated conceptualization that draws from all relevant information sources (e.g., interview, test results, behavioral observations, records).</td>
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</tbody>
</table>
• 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>
<thead>
<tr>
<th>Domain</th>
<th>Competency encompassed by domain</th>
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<tbody>
<tr>
<td>Knowledge-based competencies</td>
<td>The clinical neuropsychologist will have knowledge of:</td>
</tr>
<tr>
<td></td>
<td>• evidenced-based intervention practices to address cognitive and behavioral problems present in different clinical populations.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
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<tr>
<td></td>
<td>• how complex neurobehavioral disorders (e.g., aphasia, anosognosia, neuropsychiatric illness) and sociocultural factors can affect the applicability of interventions.</td>
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<tr>
<td></td>
<td>• how to promote cognitive health with patients through activities such as physical and cognitive exercise, stress management, and sleep hygiene.</td>
</tr>
<tr>
<td></td>
<td>• empirically supported interventions provided by psychologists and other mental and behavioral health professionals.</td>
</tr>
<tr>
<td>Applied competencies</td>
<td>The clinical neuropsychologist will be able to:</td>
</tr>
<tr>
<td></td>
<td>• identify targets of interventions and specify intervention needs.</td>
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<tr>
<td></td>
<td>• employ assessment and provision of feedback for therapeutic benefit.</td>
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<tr>
<td></td>
<td>• identify potential barriers to intervention and adapt interventions to minimize such barriers.</td>
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<tr>
<td></td>
<td>• develop and implement treatment plans that address neuropsychological deficits while accounting for patient preferences, individual differences, and social cultural context.</td>
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<tr>
<td></td>
<td>• implement evidence-based interventions in neuropsychological disorders.</td>
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<td></td>
<td>• independently evaluate the effectiveness of interventions employing appropriate assessment and outcome measurement strategies.</td>
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<td></td>
<td>• demonstrate an awareness of ethical and legal ramifications of neuropsychological intervention strategies.</td>
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Table 4: Functional Competencies: Consultation

<table>
<thead>
<tr>
<th>Domain</th>
<th>Competency encompassed by domain</th>
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<tbody>
<tr>
<td>Knowledge-based competencies</td>
<td>The clinical neuropsychologist will have knowledge of:</td>
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<tr>
<td></td>
<td>• professional roles and expectations of a consulting clinical neuropsychologist specific to each setting.</td>
</tr>
<tr>
<td></td>
<td>• relevant literatures on the roles of neuropsychologists in consultation settings.</td>
</tr>
<tr>
<td></td>
<td>• appropriate and contextually sensitive methods of consultation.</td>
</tr>
<tr>
<td>Applied competencies</td>
<td>The clinical neuropsychologist will be able to:</td>
</tr>
<tr>
<td></td>
<td>• determine and clarify referral issues.</td>
</tr>
<tr>
<td></td>
<td>• educate referral sources regarding the utility and relevance of neuropsychological services.</td>
</tr>
<tr>
<td></td>
<td>• communicate findings from consultation activities effectively and efficiently.</td>
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<tr>
<td></td>
<td>• provide effective assessment feedback and articulate appropriate recommendations in language appropriate for the audience.</td>
</tr>
<tr>
<td></td>
<td>• provide effective consultation services within common settings and contexts in clinical neuropsychology practice.</td>
</tr>
<tr>
<td></td>
<td>• communicate scientific findings within clinical neuropsychology in a manner that is relevant to the consultation setting and understandable to the recipient.</td>
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<tr>
<td></td>
<td>• provide consultation in clinical research regarding brain behavior relationships and appropriate neurobehavioral assessment strategies and tools.</td>
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</tbody>
</table>
**Table 5: Functional Competencies: Research/Evaluation**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Competency encompassed by domain</th>
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</thead>
<tbody>
<tr>
<td><strong>Knowledge-based competencies</strong></td>
<td>The clinical neuropsychologist will have knowledge of:</td>
</tr>
<tr>
<td></td>
<td>• the scientific method in generating neuropsychological knowledge and evaluating findings related to neuropsychological techniques, brain-behavior relationships, assessment strategies, and interventions.</td>
</tr>
<tr>
<td></td>
<td>• research design and analysis relevant to clinical neuropsychological science and practice.</td>
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<tr>
<td></td>
<td>• the wide array of factors that mediate and modulate behavior and their implications for neuropsychological and related research.</td>
</tr>
<tr>
<td></td>
<td>• performs research in an ethical and responsible manner, adhering to established national and institutional guidelines.</td>
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<tr>
<td><strong>Applied competencies</strong></td>
<td>The clinical neuropsychologist will be able to:</td>
</tr>
<tr>
<td></td>
<td>• select research topics and perform literature reviews effectively.</td>
</tr>
<tr>
<td></td>
<td>• demonstrate skills in conceptualizing, implementing, and interpreting research design and statistical analysis.</td>
</tr>
<tr>
<td></td>
<td>• perform research activities, monitoring of progress, and evaluation of outcomes accurately and effectively.</td>
</tr>
<tr>
<td></td>
<td>• communicate research findings effectively.</td>
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<tr>
<td></td>
<td>• apply research methods in evaluating effectiveness of professional activities in clinical neuropsychology.</td>
</tr>
</tbody>
</table>
### Table 6: Functional Competencies: Teaching/Supervision

<table>
<thead>
<tr>
<th>Domain</th>
<th>Competency encompassed by domain</th>
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<tbody>
<tr>
<td>Knowledge-based competencies</td>
<td>The clinical neuropsychologist will have knowledge of:</td>
</tr>
<tr>
<td></td>
<td>• supervision theories, methods, and practices in professional psychology and clinical neuropsychology.</td>
</tr>
<tr>
<td></td>
<td>• developmental stages in training that may impact the acquisition of clinical neuropsychology knowledge and skills.</td>
</tr>
<tr>
<td></td>
<td>• ethical issues and state requirements relevant to teaching and supervision</td>
</tr>
<tr>
<td>Applied competencies</td>
<td>The clinical neuropsychologist will be able to:</td>
</tr>
<tr>
<td></td>
<td>• provide effective teaching activities, presenting materials in an organized manner that is appropriate to the needs of the audience.</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
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<td></td>
<td>• provide effective training in developing and asserting professional identity and role as a clinical neuropsychologist.</td>
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<tr>
<td></td>
<td>• provide effective training in neuropsychological interviewing, test interpretation, case conceptualization, and the development of recommendations.</td>
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<td></td>
<td>• provide effective training in treatment planning and the provision of feedback.</td>
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<td></td>
<td>• demonstrate sensitivity to individual and cultural differences in supervisory contexts.</td>
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<tr>
<td>Domain</td>
<td>Competency encompassed by domain</td>
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<tr>
<td>Knowledge-based competencies</td>
<td>The clinical neuropsychologist will have knowledge of:</td>
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<tr>
<td></td>
<td>• administrative structures of practice settings relevant to neuropsychology.</td>
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<td></td>
<td>• common administrative and business practices needed to address prevalent assessment and consultation issues in neuropsychology practice (e.g., referral patterns, coding, billing, documentation).</td>
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<td></td>
<td>• methods and procedures for outcome assessment, program evaluation, and research in neuropsychology.</td>
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<tr>
<td>Applied competencies</td>
<td>The clinical neuropsychologist will be able to:</td>
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<tr>
<td></td>
<td>• function effectively within administrative systems, educating others about role of neuropsychology and supporting structures with the goal of improving access to needed services.</td>
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<tr>
<td></td>
<td>• implement administrative structures to address needs in neuropsychology practice settings (e.g., quality improvement, access to care, funding).</td>
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<td></td>
<td>• train and supervise technicians/psychometrists and monitor their skills following regulatory, ethical and legal standards.</td>
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<td>Domain</td>
<td>Competency encompassed by domain</td>
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</tr>
<tr>
<td>Knowledge-based competencies</td>
<td>The clinical neuropsychologist will have knowledge of:</td>
</tr>
<tr>
<td></td>
<td>• regulatory and policy initiatives that can affect provision of neuropsychology services and access to care.</td>
</tr>
<tr>
<td>Applied competencies</td>
<td>The clinical neuropsychologist will be able to:</td>
</tr>
<tr>
<td></td>
<td>• 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.</td>
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<td></td>
<td>• collaborate with psychologists and other professionals to advocate for the profession and the specialty of neuropsychology.</td>
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<td>• educate the public about the nature and value of neuropsychology in healthcare.</td>
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Appendix 5: List of Major Journals and Basic Texts

Journals (alphabetical order)
Archives of Clinical Neuropsychology (http://acn.oxfordjournals.org/)

Journal of Clinical and Experimental Neuropsychology (http://www.tandfonline.com/loi/ncen20)


Neuropsychologia (http://www.journals.elsevier.com/neuropsychologia/)

Neuropsychology (http://www.apa.org/pubs/journals/neu/)

Neuropsychology Review (http://www.springer.com/biomed/neuroscience/journal/11065)

The Clinical Neuropsychologist (http://www.tandfonline.com/toc/ntcn20/current)

Basic Texts (see also http://www.apapracticecentral.org/update/2011/06-09/practitioners-bookshelf.aspx)


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.

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**References**


Appendix 7: Partial List of Tests Used in Clinical Neuropsychology

Behavioral Assessment Scale for Children -2
Behavior Rating Inventory of Executive Function
Benton Facial Recognition
Benton Visual Form Discrimination
Benton Visual Retention Test
Boston Diagnostic Aphasia Exam
Boston Naming Test
Brief Visual Memory Test – Revised
California Verbal Learning Test-Second Edition
Children’s Memory Test
Columbia Visual Naming Set A
Continuous Visual Memory Test
Delis Kaplan Executive Function System
Dementia Rating Scale – 2
Finger Tapping
Florida Affect Battery
Grooved Pegboard
Hooper Visual Organization Test
Judgment of Line Orientation
NAB Category Test
NAB Naming Test
Peabody Picture Vocabulary Test 4th Edition
Pyramid & Palm Trees
Rey Auditory Verbal Learning Test
Rey Osterreith Complex Figure Test
Rorschach
Smell Identification Test
Stroop Color Word Test
The Visual-Verbal Test
Token Test
Test of Malingered Memory
Tower of London
Wechsler Adult Intelligence Scale – IV
Wechsler Child Intelligence Scale-V
Wechsler Memory Scale – IV
Wechsler Test of Achievement Revised
Western Aphasia Battery
Wide Range Achievement Test 4
Woodcock Johnson IV
<table>
<thead>
<tr>
<th>State</th>
<th>Program</th>
<th>City</th>
<th>Program Name</th>
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<tbody>
<tr>
<td>CA</td>
<td>VA Northern California Health Care System, Martinez - CA</td>
<td>Martinez</td>
<td>Martinez Outpatient Clinic/Mental Health 116/MTZ</td>
</tr>
<tr>
<td>CA</td>
<td>San Francisco VA Medical Center</td>
<td>San Francisco</td>
<td>Clinical Neuropsychology Residency</td>
</tr>
<tr>
<td>CT</td>
<td>VA Connecticut Healthcare System, West Haven - CT</td>
<td>West Haven</td>
<td>Psychology Service (116B)- Clinical Neuropsychology Postdoctoral Program</td>
</tr>
<tr>
<td>FL</td>
<td>James A. Haley Veterans Hospital, Tampa - FL</td>
<td>Tampa</td>
<td>Mental Health and Behavioral Sciences, Psychology Service</td>
</tr>
<tr>
<td>HI</td>
<td>Tripler Army Medical Center</td>
<td>Tripler AMC</td>
<td>Psychology Specialty Services</td>
</tr>
<tr>
<td>MA</td>
<td>Edith Nourse Rogers Memorial VA Hospital</td>
<td>Bedford</td>
<td>Psychology Service</td>
</tr>
<tr>
<td>MA</td>
<td>VA Boston Healthcare System (VABHCS)</td>
<td>Boston</td>
<td>Psychology Service (116B)</td>
</tr>
<tr>
<td>MD</td>
<td>Walter Reed National Military Medical Center</td>
<td>Bethesda</td>
<td>Department of Psychology, Neuropsychology Service, Assessment Division</td>
</tr>
<tr>
<td>MD</td>
<td>VA Maryland Health Care System</td>
<td>Baltimore</td>
<td>Postdoctoral Fellowship in Clinical Neuropsychology</td>
</tr>
<tr>
<td>MI</td>
<td>Rehabilitation Institute of Michigan</td>
<td>Detroit</td>
<td>Department of Rehabilitation Psychology and Neuropsychology</td>
</tr>
<tr>
<td>MI</td>
<td>Mary Free Bed Rehabilitation Hospital</td>
<td>Grand Rapids</td>
<td>Psychology Service</td>
</tr>
<tr>
<td>MI</td>
<td>University of Michigan Medical School/VA Ann Arbor</td>
<td>Ann Arbor</td>
<td>UM-VA Consortium (Neuropsychology)</td>
</tr>
<tr>
<td>MN</td>
<td>Mayo Clinic Medical Psychology Fellowship Program</td>
<td>Rochester</td>
<td>Department of Psychiatry and Psychology</td>
</tr>
<tr>
<td>MN</td>
<td>Minneapolis VA Health Care System</td>
<td>Minneapolis</td>
<td>Mental Health Service Line</td>
</tr>
<tr>
<td>MO</td>
<td>VA St. Louis Health Care System, St. Louis - MO</td>
<td>St. Louis</td>
<td>Mental Health Service</td>
</tr>
<tr>
<td>NM</td>
<td>New Mexico VA Health Care System</td>
<td>Albuquerque</td>
<td>Clinical Neuropsychology Postdoctoral Program</td>
</tr>
<tr>
<td>OH</td>
<td>Louis Stokes Cleveland VA Medical Center</td>
<td>Cleveland</td>
<td>Psychology Service</td>
</tr>
<tr>
<td>OK</td>
<td>University of Oklahoma Health Sciences Center</td>
<td>Oklahoma City</td>
<td>Dept. of Psychiatry &amp; Behavioral Sciences</td>
</tr>
<tr>
<td>TN</td>
<td>Memphis VA Medical Center</td>
<td>Memphis</td>
<td>Clinical Neuropsychology Postdoctoral Fellowship Program</td>
</tr>
<tr>
<td>TX</td>
<td>Michael E. DeBakey VA Medical Center</td>
<td>Houston</td>
<td>Clinical Neuropsychology Postdoctoral Fellowship</td>
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<tr>
<td>TX</td>
<td>San Antonio Uniformed Services Health Education Consortium (SAUSHEC)</td>
<td>JBSA Fort Sam Houston</td>
<td>Postdoctoral Fellowship in Clinical Neuropsychology</td>
</tr>
<tr>
<td>TX</td>
<td>South Texas Veterans Health Care System</td>
<td>San Antonio</td>
<td>Psychology Service (116B)</td>
</tr>
<tr>
<td>WI</td>
<td>Medical College of Wisconsin</td>
<td>Milwaukee</td>
<td>Department of Neurology</td>
</tr>
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</table>
# Appendix 9: Taxonomy for training in Clinical Neuropsychology

<table>
<thead>
<tr>
<th>Major Area of Study</th>
<th>Doctoral¹</th>
<th>Internship¹</th>
<th>Postdoctoral¹</th>
<th>Post-licensure¹</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Minimum of 1) Three neuropsychology² courses, 2) two clinical neuropsychology practica³, 3) additional coursework, practica, or didactics in clinical neuropsychology⁴, AND 4) dissertation or research project in neuropsychology</td>
<td>1) At least 50% of training time in clinical neuropsychology AND 2) didactic experiences consistent with Houston Conference guidelines for knowledge⁵ and skill⁶.</td>
<td>11) Two-years full-time (or the equivalent) of formal training in clinical neuropsychology, with relevant didactic, clinical, and research activities (including assessment and intervention that incorporate neuropsychological theories, perspectives, or methods and exposure to related healthcare disciplines).</td>
<td>N/A</td>
</tr>
</tbody>
</table>

| Emphasis | 1) Two neuropsychology courses² AND 2) two clinical neuropsychology practica³ | >30% and <50% of experience in clinical neuropsychology supervised by a clinical neuropsychologist. | N/A | N/A |

| Experience | 1) One or two neuropsychology course(s)² AND 2) one clinical neuropsychology practicum³ | >10% and <30% of supervised experience in clinical neuropsychology | N/A | N/A |

| Exposure | 1) One neuropsychology course² OR 2) one clinical neuropsychology practicum³ | 5% - 10% of supervised experience in clinical neuropsychology and/or didactic training. | N/A | Any hours of CE in clinical neuropsychology |

**NOTE:** As per APA guidelines all supervision in clinical neuropsychology must be provided by a persons with competencies in clinical neuropsychology, aka, a clinical neuropsychologist.

1At the doctoral and internship training levels, it is recognized that all programs must meet the broad and general requirements for accreditation by the American Psychological Association (APA) or the Canadian Psychological Association (CPA). At the postdoctoral training level, it is recognized that the Major Area of Study is consistent with training standards for specialty accreditation in clinical neuropsychology through the APA. Regarding all levels of training, guidelines for specialty education and training in clinical neuropsychology are specified in the Houston Conference Guidelines, Hannay, JH, Bieliauskas, LA, Crosson, BA, Hammeke, TA, Hammsher, K. deS., & Koffler, SP. (1998). Proceedings of the Houston Conference on Specialty Education and Training in Clinical Neuropsychology, Archives of Clinical Neuropsychology, 13, 157-250.

2To be a neuropsychology course, the course content must prominently address areas outlined in the Houston Conference Guidelines policy statement, Section VI.3 and Section VI.4. Additionally, the number of courses listed above assumes that courses are 3 credit hours each, within a semester system. As such, the Major Area of Study would require a minimum of 9 semester credit hours or 13.5 quarter credit hours, the Emphasis would require a minimum of 6 semester credit hours or 9 quarter credit hours, and the Experience and the Exposure would require a minimum of 3 semester credit hours or 4.5 quarter credit hours.
Defined by practicum experience for equivalent of one academic year (e.g. 9 months, in semester or quarter systems) consisting of supervised training for at least 8 hours per week, with at least 50% clinical contact with patients in the provision of neuropsychological services. Consistent with

Additional training experiences can also include, but are not limited to, research experiences, lab meetings, brown bags, lecture/colloquia series, grand rounds, etc. and should be consistent with the guidelines for specialty education and training that are specified in the Houston Conference policy statement.

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

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 outcome. Recognition of multicultural issues. 3. Consultation (patients, families, medical colleagues, agencies, etc.): A. Effective basic communication (e.g. listening, explaining, negotiating) B. Determination and clarification of referral issues C. Communication of evaluation results and recommendations D. 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).

The residency experience must occur on at least a half-time basis.
Clinical Training in Neuropsychology @ UF

The Clinical Neuropsychology Division provides training in the theory and practice of clinical neuropsychology. Our Psychology Clinic, located within the UF Health Sciences Center, serves as the primary training ground for the practice of clinical neuropsychology. The Health Sciences Center includes Shands Teaching Hospital (570 beds) and 23 associated clinics. In the Psychology Clinic both inpatient and outpatient services are provided, ranging from traditional neuropsychological evaluations, to briefer assessments for targeted populations, to provision of consultative services via attendance at case management conferences (i.e., epilepsy, movement disorders, acute TBI, ADHD, etc.).

Clinical Populations:
Epilepsy, Parkinson Disease and Movement Disorder, Mild Cognitive Impairment (MCI) and Dementia, Adult LD/ADHD, TBI, Post-operative cognitive changes, Stroke and vascular disease, General Neurologic disorders (MS, radiation necrosis, cadasil, etc.), General medical conditions; Pediatric populations

Clinical Neuropsychology Supervisors:
Bauer ABPP-CN, Bowers ABPP-CN, Dede, Dotson, Heaton (child), Price ABPP-CN, Smith ABPP-CN

Clinical Orientation
The approach to clinical assessment and supervision varies among the faculty, spanning the range from flexible battery approaches to fixed batteries for specific populations. Both process and psychometric traditions are emphasized during clinical training

Graduate Student Training
Neuropsychology graduate students receive broad based training in the practice of clinical psychology during rotations through five core clinical practica. Four of these core practica occur during the second year of graduate school and include rotations in Neuropsychology, Child, Medical/health, and General Mental Health. These rotations take place in the Psychology Clinic.

Beyond the core rotation, students in the Neuropsychology tract also obtain additional training in the practice of neuropsychology through advanced practica. These include one general Advanced Practicum in Neuropsychology in the Psychology Clinic and various Specialty Practica in Neuropsychology. General information regarding these practica is shown below.

Clinical Practicum Rotations for Graduate Students
1. Practicum in Clinical Psychology (Neuropsychology)
2. Advanced Practicum in Clinical Neuropsychology
3. Specialty Advanced Practica in Clinical Neuropsychology:

**COURSEWORK**

A variety of neuropsychology-related courses are offered by faculty within the Neuropsychology Division. For the neuropsychology concentration, students must take three required courses (Neuroanatomy, Higher Brain Function, Adult Neuropsychological Assessment) and enroll in a specified number of electives. Depending on their specific academic interests, students may choose to take pertinent courses from other departments at the University (see UF Catalogue).

**Neuropsychology Coursework**

- Higher Brain Function*
- Neuropsychological Assessment of Adults*
- Neuropsychological Assessment of Children
- Neuroanatomy in the Medical Neurosciences*
- Forensic Neuropsychology
- Experimental Methods in Neuropsychology and Cognitive Neuroscience
- Neuropsychological Disorders in the Elderly
- Cognitive Aging: Very Late Life
- Practicum in Clinical Psychology (Neuropsychology)*
- Advanced Practicum in Neuropsychology*
- Advance Specialty Practicum in Neuropsychology*

**Neuropsychology Internship**

Our APA-approved internship involves broad exposure to a variety of neuropsychology supervisors and diverse clinical populations. A typical day in the life of the neuropsychology intern includes two formal clinic days where the intern works with an assigned neuropsychology faculty mentor seeing patients coming through that faculty member's clinic. The remaining days involve clinical supervision, seeing therapy clients, attendance at various educational meetings (i.e., neurology grand rounds, epilepsy management conference, etc.), and designated research. Time wise the internship is divided into four quarters, during which the interns rotate among different supervisors. During the third quarter, interns rotate "off" neuropsychology and see patients through the child-pediatric and medical-health psychology services.

**Requirement for Intern Applicants:** Because neuropsychology interns rotate through adult and child services, applicants should have some prior clinical experience in the intellectual and cognitive assessment of both adults and children.
Appendix 11: Continuing Education Opportunities

## Schedule-at-a-Glance

**October 19-22, 2016 | The Westin Seattle | Seattle, Washington**

**Wednesday, October 19**
- **CE Workshop (2 CE)** 7:00 am – 9:00 am
  1. Wilhelms, et al. - ABPN Test Prep
- **Continental Breakfast** 7:30 am – 9:00 am
- **CE Workshops (3 CE)**
  1. Larabee - Performance & Symptom Validity
  2. Lebby - Neuroimaging 101
- **Student Luncheon** 12:00 pm – 1:00 pm
  5. Leadership & Governance in Clinical Neuropsychology
- **CE Workshops (2 CE)** 1:00 pm – 3:00 pm
  7. Thomas - Adult Inclusion & Diversity
- **Welcome & NAN Business Meeting** 3:30 pm – 4:30 pm
- **CE Workshop (1 CE)** 4:30 pm – 5:30 pm
- **Exhibit Hall Hours**
  - **Thursday** 7:30 am – 9:00 am
  - 12:00 pm – 2:00 pm
  - 6:30 pm – 8:00 pm
- **Keynote Address (1 CE)** 5:30 pm – 6:30 pm
- **Women in Leadership Networking Event** 7:30 pm – 9:30 pm

**Thursday, October 20**
- **CE Workshop (2 CE)** 7:00 am – 9:00 am
  10. Doddie - ABPN Test Prep
- **Continental Breakfast**
- **Exhibit Hall Open** 7:30 am – 9:00 am
- **CE Workshops (3 CE)**
  9:00 am – 12:00 pm
  11. Roett - Preclinical Alzheimer's Disease
  12. Edgar & Romero - Pediatric Inclusion & Diversity
  13. Moser - Neuropsychologist & Youth Concussion
- **Poster Session A**
  12:00 pm – 1:30 pm
- **Exhibit Hall Open**
  12:00 pm – 3:30 pm
- **CE Workshops (1.5 CE)**
  1:30 pm – 3:00 pm
  14. Randolph - Positive Neuropsychology
  15. Pearlson - Recreational & Medical Marijuana
- **Paper Sessions (1 CE)**
  1:30 pm – 2:30 pm
  16. Performance & Symptom Validity
  17. Aging & Dementia
  2:45 pm – 3:45 pm
  18. Psychometric Test Development & Assessment
  19. Traumatic Brain Injury
- **CE Workshops (1.5 CE)**
  3:30 pm – 5:00 pm
  20. Butter's - Depression & Dementia
- **Exhibit Hall Hours**
  - **Friday** 7:30 am – 9:00 am
  - 12:00 pm – 2:00 pm
  - 6:30 pm – 8:00 pm

**Friday, October 21**
- **CE Workshop (2 CE)** 7:00 am – 9:00 am
  25. Bielawski - ABPN Test Prep
- **Continental Breakfast**
- **Exhibit Hall Open** 7:30 am – 9:00 am
- **CE Workshops (3 CE)**
  9:00 am – 12:00 pm
  26. Bigler - Advanced Neuroimaging
  27. Barr & Miller - Technology Crisis
  28. Stavrinou & Pelleiter - Neuropsychology Working with Schools
- **Special Interest Group Meetings**
  12:00 pm – 1:30 pm
- **Poster Session C**
  12:00 pm – 1:30 pm
- **Exhibit Hall Open**
  12:00 pm – 3:30 pm
- **CE Workshops (2 CE)**
  2:00 pm – 4:00 pm
  29. Gorskie - Collaborative Interviewing
  30. Manly - In-Home Evaluation
  31. Schoenberger - Adult Grand Rounds
  32. Fastenu - Pediatric Grand Rounds
- **Awards Ceremony**
  4:30 pm – 5:00 pm
- **NANSeattle**
- **Distinguished Lifetime Contribution to Neuropsychology Award Address (1 CE)**
  5:00 pm – 6:00 pm
  33. Sweet - Data Driven Neuropsychology

**Saturday, October 22**
- **Continental Breakfast**
- **Exhibit Hall Open** 7:30 am – 9:00 am
- **CE Workshops (2 CE)**
  8:30 am – 10:30 am
  34. Churchland - Neuroethics
  35. PAC Update - Advanced Practice
- **CE Workshop (1 CE)**
  11:00 am – 12:00 pm
  36. Yassa - Episodic Memory

**#NANSeattle**