

Position Paper

Professional Considerations for Improving the Neuropsychological  
Evaluation of Hispanics: NAN Education Paper

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**Abstract**

In a national survey, 82% of U.S. neuropsychologists who offered services to Hispanics self-reported inadequate preparation to work with this population (Echemendia, Harris, Congett, Diaz, & Puente, 1997). The purpose of this paper is to improve the quality and accessibility of neuropsychological services for Hispanic people living in the United States by giving guidance for service delivery, training, and organizational policy. General guidance towards this end comes from professional ethics for psychologists and interpreters/translators, federal civil rights law, the International Test Commission, and the Office of Minority Health of the U.S. Department of Health and Human Services, among others. This guidance is specifically applied here to cover professional cultural and linguistic competence of neuropsychologists, psychometrists, interpreters, translators, and consultants; languages of evaluation; use of interpreters; evaluation of acculturation; test translation, adaptation, and interpretation; application of test norms; intervention issues; reimbursement; and organizational issues.

**Keywords:** Hispanic; Neuropsychology; Assessment; Spanish; Interpreter; Translation; Acculturation; Cross-Cultural

**Introduction**

Many of the Hispanics that clinical neuropsychologists encounter have migrated from different cultures and settings, for many different reasons, at different times in their lives or in previous generations, and maintain a diversity of attitudes toward their cultures of origin and host culture. Hispanics are an ethnically heterogeneous group of individuals from countries of predominantly Spanish origin. Hispanics are the largest and fastest growing ethnic-minority group in the USA and compose 14% of the U.S. population (U.S. Census Bureau, 2006). There are 42.7 million Hispanic immigrants originating from Mexico

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(64%), Puerto Rico (9.6%), and Cuba (3.5%), as well as from South America, Central America, Spain, and the Caribbean islands. These numbers do not include the 4 million residents living in Puerto Rico (U.S. Census Bureau, 2006) and the many undocumented individuals residing in the USA. Approximately 31 million Hispanics speak Spanish at home, and about half of these say that they speak English very well. Although there are differences between sub-groups, taken as a whole, Hispanics in the USA are less educated than the general population; 21% of Hispanic adults have less than a ninth grade education when compared with 6.4% of the general population and 3.5% of the non-Hispanic white population, and also 52% have less than a high school education when compared with 20.1% of the general population and 14.8% of the non-Hispanic white population (U.S. Census Bureau, 2006). In the USA, Hispanics are more likely to work in service occupations than non-Hispanic whites, almost twice as likely to work as laborers and equipment operators, and more likely to live below the poverty level (21.9% vs. 8.6%).

## Definitions

Before proceeding, it is important to define several standard terms used in this paper, because they can be easily misunderstood. *Interpreters* interpret spoken language. *Translators* translate written language. *Sight translation* is the process of reading a document aloud in a language other than the language in which it is written. *Acculturation* is the adaptation to or learning of a second culture.

A clinical or research encounter is *cross-cultural* when there are significant cultural or language differences between the examiner, examinee, informants, tests, and/or social context. For example, when a Hispanic client who was raised in Mexico speaks English as a second language and the neuropsychologist is neither fluent in Spanish nor knowledgeable of Mexican culture, then this is considered cross-cultural because of the apparent language and cultural difference between the examiner and examinee.

## Professional Considerations for Improving Services to Hispanics

Professional considerations for improving services to Hispanics are discussed in this section. Table 1 provides the published guidelines for (a) professional ethics, (b) professional consensus and recommendations, and (c) interpretations of Federal Law that apply to the practice of neuropsychology with Hispanics in the USA.

## Levels of Competency

Neuropsychologists strive to ensure that clients receive a linguistically, culturally, and clinically competent evaluation. The preferred way of ensuring that an appropriate evaluation is performed is for the clinician to possess the necessary competencies to provide the services (including speaking the client's primary language) or to refer to a provider who has the required competencies (2.c, 6.a, American Psychological Association, 1993; Ethical Standard 2.01b, American Psychological Association, 2002; selected cited works, such as the APA ethics code, are denoted by their respective section number and letter). When these options are not possible, the neuropsychologist can work with a qualified interpreter after obtaining training or consultation for the relevant linguistic and cultural factors (2.a, 6.a, 6.b, American Psychological Association, 1993; Ethical Standard 2.01, American Psychological Association, 2002).

## Language(s) of Evaluation

An initial and important step in a neuropsychological evaluation is for the clinical neuropsychologist to determine the best language(s) to use for the evaluation of specific examinees (1.b, 2.d, 6.a, 6.b, 6.c, 9.c, American Psychological Association, 1993; Ethical Standard 9.02, American Psychological Association, 2002). The neuropsychologist may want to consider the degree and nature of the examinee's bilingualism/multilingualism, including the ability to understand, speak, read, and write the relevant languages (Paradis, 1987). Preferences of language and dialect use within given domains of discourse may also need to be explored. Ideally, the examinee is evaluated in his or her preferred and/or best language (American Psychiatric Association, 2000; Ethical Standard 9.02, American Psychological Association, 2002; Department of Health and Human Services, 2002; Department of Justice, 2002). However, the availability and appropriateness of tests and norms may be a factor in this decision (2.d, American Psychological Association, 1993). Neuropsychologists should attempt to make their services linguistically accessible to family members of clients or others who serve as informants, as collaterals

**Table 1.** Published guidelines**Professional Ethics**

The Ethical Principles of Psychologists and Code of Conduct (American Psychological Association, 2002).

The American Translators Association (ATA) Code of Professional Conduct and Business Practices (American Translators Association, 2002; Cross Cultural Health Care Program, 2000).

**Professional Consensus and Recommendations**

The American Psychological Association's (APA) "Guidelines for Providers of Psychological Services to Ethnic, Linguistic, and Culturally Diverse Populations" (American Psychological Association, 1993).

The APA Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists, (American Psychological Association, 2003).

The International Test Commission (ITC) Test Adaptation Guidelines (International Test Commission, 2002).

The Office of Minority Health of HHS National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health Care (Office of Minority Health, 2001).

Diagnostic and Statistical Manual of Mental Disorders, American Psychiatric Association, Appendix I: The Cultural Formulation (American Psychiatric Association, 2000).

**Interpretation of Federal Law**

The Department of Justice (DOJ) Guidance to Federal Financial Assistance Recipients Regarding Title VI Prohibition against National Origin Discrimination Affecting Limited English Proficient Persons (Department of Justice, 2002).

The Department of Health and Human Services (DHHS) Guidance to Federal Financial Assistance Recipients Regarding Title VI Prohibition against National Origin Discrimination Affecting Limited English Proficient Persons (Department of Health and Human Services, 2002).

to treatment, or as recipients of feedback (2.d, 6.a, 6.b, 6.c, American Psychological Association, 1993; V., Department of Health and Human Services, 2002; V., Department of Justice, 2002). This might include, though is not limited to, providing handouts with the rationale for testing and other test-related issues (e.g., getting adequate rest before testing) and/or translating recommendations into his or her primary language. Neuropsychologists can attempt to evaluate examinees in both Spanish and English when the situation calls for it, such as in the evaluation of language disorders (Paradis, 1987). When the purpose of the evaluation is to determine the examinee's competencies in the context of a given language, it makes sense that the individual should be evaluated in that specific language. For example, when an examinee's ability to participate in English-language schooling, work, or court proceedings is in question, the best choice would appear that he or she be evaluated in English. Moreover, if the goal is to determine how well an individual with acquired brain damage can function in a treatment or rehabilitation environment that is based on English as the spoken language, then the evaluation probably should be conducted in English. When language preference and abilities vary across domains of interest, evaluations in each language may be needed, such as when evaluating personality and emotions in the home language and evaluating academic abilities in the language of education. When the language of evaluation has little relevance to the specific ability being evaluated, a bilingual evaluation may be preferable. For example, academic achievement in mathematics, science, social studies, and other areas may be best evaluated by tests that present items and permit responses in both languages (Stansfield, 2003). Conceptual scoring (Umbel, Pearson, Fernández, & Oller, 1992), which entails counting the concepts demonstrated in both languages and correcting for concepts shared in the two languages, can provide a more accurate representation of a bilingual individual's knowledge of concepts (Muñoz-Sandoval, Cummins, Alvarado, & Ruef, 1998). The best practice is to document the reasons for the choice of language(s) of evaluation.

Not all Latin American immigrants are native Spanish speakers. Some may speak Portuguese, French, Quechua, Mixteco, or other indigenous languages and, thus, Spanish may be their second language. Spanish regional variation might be relevant when conducting assessments and interpreting the results. There are important intrinsic differences between languages such that scores and norms do not readily translate or transfer from one language to another (2.d, American Psychological Association, 1993; Ethical Standards 9.02, American Psychological Association, 2002). Examples of test norms that do not transfer between English and Spanish include Digit Span (Arguelles, Loewenstein, & Arguelles, 2001), verbal fluency (Acevedo et al., 2000), and oral word reading (Burin, Jorge, Arizaga, & Paulsen, 2000). Additional research is needed to explore factors related to these discrepancies.

**Use of Interpreters**

Once the appropriate language(s) of evaluation has (have) been determined, it is preferable for the neuropsychologist to provide services directly in the language of evaluation rather than working through interpreters and translators (2.c, 6.a, American Psychological Association, 1993; Ethical Standards 2.01b & 9.02c, American Psychological Association, 2002).

Providing services directly in the language of evaluation may involve referring the client to a qualified neuropsychologist who has the appropriate language skills and culture knowledge (i.e., clinician is fluent in the client's primary language). Of course, in many situations, this is not possible or feasible for a variety of reasons including the lack of availability of bilingual specialists, organizational constraints, or practical clinical considerations.

### Evaluation of Acculturation

Neuropsychologists should take into consideration the cultural identity and level of acculturation in all first- and second-generation immigrant examinees and in other examinees for whom such dimensions may be of relevance to the evaluation (e.g., most racial minorities and some subcultural groups) (3.b, 9, American Psychological Association, 1993; Pontón & Ardila, 1999). Acculturation instruments can be helpful for exploring these issues (Cabassa, 2003). Several examples include: Acculturation Rating Scale for Mexican Americans-II (Cuéllar, Arnold, & Maldonado, 1995), The Bidimensional Acculturation Scale for Hispanics (Marin & Gamba, 1996), and Short Acculturation Scale for Hispanics (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987).

### Qualifications of Neuropsychologists

Regardless of their own linguistic and cultural background, neuropsychologists are responsible for ensuring that they are trained in cross-cultural and/or cross-language work (2.b, 2.c, American Psychological Association, 1993; Ethical Standard 2.01, American Psychological Association, 2002). This training can involve formal coursework and clinical training, continuing education, consultations with colleagues, and/or independent reading in cross-cultural psychology, cross-cultural medicine, cross-cultural testing, and cross-cultural neuropsychology (2.b, American Psychological Association, 1993). Direct domestic and foreign experience with various Hispanic communities can also be very helpful. Ideally, the profession should move toward adding clinical training and experience in cross-cultural neuropsychology. At present, there are few and limited certification procedures to determine who is qualified to provide such supervision. Neuropsychologists therefore should take responsibility for the adequacy of their own language and cultural skills as they relate to the clients they serve (1.b, 2.d, 6.a, 6.b, 6.c, American Psychological Association, 1993; Ethical Standard 2.01e, American Psychological Association, 2002). Some specific recommendations for neuropsychologists who are evaluating Hispanics are listed below.

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- 1 Neuropsychologists are responsible for having adequate knowledge of the culture of the person they are evaluating (2.b, 6.a, American Psychological Association, 1993; Ethical Standard 2.01b, American Psychological Association, 2002).
  - 2 Neuropsychologists are responsible for understanding their own cultural perspectives and biases and the potential effect of these on the services rendered (3.a, American Psychological Association, 1993).
  - 3 Neuropsychologists understand the nature of cross-cultural communication in general and specifically with regard to the services offered (3.a, 3.b, 3.c, American Psychological Association, 1993, 2002).
  - 4 Neuropsychologists are responsible for having knowledge of the pertinent ethics and requisite training and skills in the use of interpreters and translators before using such services (VII.3, Department of Health and Human Services, 2002; VII.3, Department of Justice, 2002).
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### Qualifications of Interpreters and Translators

When providing service directly in the examinee's preferred language is not feasible, neuropsychologists should make efforts to use professional interpreters and translators. Ideally, these professionals are certified for the needs of the situation (i.e., those who possess medical, forensic, and/or other certification according to local standards), and follow accepted professional ethics (6.a, 6.b, American Psychological Association, 1993; Ethical Standard 2.05, American Psychological Association, 2002; American Translators Association, 2002; Cross Cultural Health Care Program, 2000). It is particularly challenging to ensure the competence of interpreters and translators in states that do not have certification. Neuropsychologists should work with the interpreter or translator to prepare for the special circumstances of neuropsychological evaluation (Ethical Standard 2.05, American Psychological Association, 2002; Melendez, 2001). Neuropsychologists are responsible for ascertaining that their interpreters and translators know and agree to the professional ethics that apply to the professional encounter (e.g., confidentiality and its limits).

Whenever possible, neuropsychologists should avoid using family members, attorneys, and other persons known to the client as interpreters, unless circumstances dictate and permit such use (6.a, 6.b, American Psychological Association, 1993; Ethical Standard 2.05, American Psychological Association, 2002; VI. A., Department of Health and Human

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Services, 2002; VI. A., Department of Justice, 2002). It is preferable to use on-site professional interpreters rather than telephone interpreters because of the improved interpretation gained from visual access.

### **Qualifications of Psychometrists and other Personnel**

It is in the best interest of the evaluation if neuropsychologists work with all personnel (e.g., receptionists, psychometrists, students) for whom they are responsible and who have direct client contact to provide cross-cultural training and skills appropriate to their roles (2.a, 2.b, 2.c, American Psychological Association, 1993; 2.05, American Psychological Association, 2002; VII.3, Department of Health and Human Services, 2002; VII.3, Department of Justice, 2002; Puente et al., 2006). Neuropsychologists who are not bilingual but who use bilingual psychometrists should ensure that psychometrists have adequate language and psychometric skills in the language used in testing (Ethical Standard 2.05, American Psychological Association, 2002). This may be done by several means, such as language achievement testing, psychometry training in English and Spanish, careful mutual review of the Spanish-language tests and audio or video recording and later review of testing with an interpreter. If a bilingual evaluation is called for using a psychometrist, the neuropsychologist ensures that the psychometrist's training in Spanish language and culture is adequate (Ethical Standard 2.05, American Psychological Association, 2002; VII.3, Department of Health and Human Services, 2002; VII.3, Department of Justice, 2002). If the psychometrist also functions as an interpreter, it is important to ensure that the psychometrist is qualified to interpret. Examinees should understand and consent to the dual role of the psychometrist/interpreter (6.a, 6.b, American Psychological Association, 1993).

### **Informed Consent**

Obtaining informed consent for evaluation across languages and cultures requires special attention (American Psychological Association, 1993; Ethical Standards 3.10 & 9.03.c, American Psychological Association, 2002). It is important to ensure that those involved understand the consent-related information in the language in which consent is granted (6.a, 6.b, 6.c, American Psychological Association, 1993; Ethical Standards 2.05, 4.01, 9.01, 9.03 a, 9.03 b, 9.03c, 9.06, & 9.07, American Psychological Association, 2002). In some cross-cultural interactions, power differential and expectations of deference to authority are present. For this reason, in some cases simply having the opportunity to read and ask questions about a consent form before signing it may not constitute true informed consent. Neuropsychologists attempt to ensure that the examinee fully understands the nature of testing, the degree to which participation is voluntary, the expectations regarding effort and honesty, the specific purposes of the evaluation, who will have access to the results, and the possible risks and consequences. The elements of informed consent may need to be revisited during the evaluation. Neuropsychologists should also obtain informed consent from their clients for the use of an interpreter (Ethical Standard 9.03c, American Psychological Association, 2002).

### **Identification of the Use of Interpreters and Translators in Reports**

It is preferable for reports and chart notes to identify by name the interpreter or translator used, their qualifications, and the interpretation or translation process used (9, American Psychological Association, 1993; 9.02b, 9.03c, American Psychological Association, 2002; International Test Commission, 2002). It is helpful to include information on the quality of the interpretation and the interactions with the client via the interpreter, identifying possible sources of error and potential effect on the conclusions that may have resulted from the interpretation process (9, American Psychological Association, 1993; Ethical Standards 9.02b & 9.03c, American Psychological Association, 2002; La Calle, 1987).

### **Adapted and Translated Tests**

The International Test Commission's Test Adaptation Guidelines are currently the most authoritative guidelines for using adapted and/or translated tests (International Test Commission, 2002). When circumstances necessitate a departure from these guidelines, it is recommended this be noted in the report as well as the potential effect on the interpretability of test results (9, American Psychological Association, 1993; Ethical Standard 9.02b, American Psychological Association, 2002). If appropriate norms are not available, this fact is typically noted in the report. There is a steadily emerging literature relating to clinical and technical issues in cross-cultural neuropsychological testing (cf. Cofresi & Gorman, 2004; Ferraro, 2002; Fletcher-Janzen, Strickland, & Reynolds, 2000; Hambleton, Merenda, & Spielberger, 2005; Hambleton & Patsula, 1999; Neil, 2000; Pontón & Leon-Carrion, 2001). Test developers and publishers are encouraged to identify in test manuals and advertising whether their

test adaptations and translations conform to the International Test Commission's Test Adaptation Guidelines (International Test Commission, 2002).

### **Test and Norm Selection**

The selection of tests and normative data is a complex issue in cross-cultural neuropsychology. Attempts should be made to identify the most appropriate test versions and norms available for the particular individual and situation. It is important to try to document assumptions in using those tests and norms as well as to identify limitations in the interpretation of these test results (6.c, American Psychological Association, 1993; Ethical Standard 9.02, American Psychological Association, 2002). For example, if a neuropsychologist uses a test and norms from Spain for an examinee educated in Mexico, it is important to identify regional differences with respect to language, educational systems, or culture that could influence the normative interpretation of the test.

In general, efforts should be made to select tests and norms that (a) come as close as possible to meeting recognized scientific standards of validation, (b) are representative of the population with whom they are being used, and (c) follow standards of translation and adaptation (6.c, American Psychological Association, 1993; Ethical Standard 9.02, American Psychological Association, 2002; International Test Commission, 2002). Spanish language tests that are appropriate to most Spanish-speakers in the USA are now available and well-known to practitioners adequately prepared in this field. Evaluation in Spanish by means of sight-translation or oral interpretation of English language tests is generally considered suboptimal.

Neuropsychological evaluations are often used not only for identifying and quantifying neurocognitive impairment, but also for making predictions regarding real-world functioning. Neuropsychologists typically use clinical judgment to determine which tests are most appropriate for a specific purpose. For example, an English reading and writing achievement test applied to a student who is learning English as a second language might be appropriate for determining the level of instruction needed, but would be inappropriate for diagnosing a learning disability.

### **Effects of Examinee Education**

Level of education can have a major affect on neuropsychological test performance, especially as it relates to the first few years of education (Gasquoine, 2001; Manly et al., 1999). These effects can be as significant for nonverbal tests as they are for verbal tests (Rosselli & Ardila, 2003). Many Hispanic immigrants have levels of education below the available normative groups for many neuropsychological tests (even for translated, adapted, and renormed tests). Therefore, such tests and norms might prove unsuitable in some clinical circumstances. It is preferable to select and use tests and norms that have been developed specifically for such populations (7.a, 7.b, American Psychological Association, 1993; Ethical Standard 9.02, American Psychological Association, 2002; International Test Commission, 2002). There is much variability in the quality, nature, and education policies across Latin America. Years of education in Latin America may not be equivalent to years of education in the U.S., grades may be repeated more commonly in Latin America than in the U.S., reading achievement in Spanish may exceed equivalent grade level reading achievement in English, and developmental norms and adaptive behavior expectations may differ significantly.

### **Interventions**

The focus of this paper is on evaluation rather than intervention. Nevertheless, there are pertinent guidelines (American Psychological Association, 1993, 2002, 2003; Department of Health and Human Services, 2002; Department of Justice, 2002) and a rich literature concerning cross-cultural interventions (cf. Ostrosky, Ardila, & Chayo, 1996; Pontón, González, & Mares, 1997; Pope-Davis & Coleman, 1997; Sue & Sue, 1999). Ideally, interventional recommendations should take language and culture into account. When providing information regarding interventions, or feedback regarding evaluation results, conclusions, and recommendations, attempts are made to make the information linguistically, cognitively, and culturally accessible to individuals receiving feedback. Making recommendations accessible may involve using a qualified interpreter for feedback sessions, using a qualified translator to produce an evaluation summary and handout materials in the recipient's native language, or making cultural adaptations in the feedback content and process (American Psychological Association, 1993; Ethical Standards 9.06 & 9.10, American Psychological Association, 2002).

**Table 2.** Goals and objectives for improving neuropsychological evaluation services for Hispanic clients

1	To obtain training and competence in cross-cultural evaluation of Hispanic clients (2.a, 2.b, 2.c, American Psychological Association, 1993; Ethical Standard 2.01, American Psychological Association, 2002).
2	To have the relevant general and neuropsychological knowledge concerning the client's specific language(s) and culture(s) (Ethical Standards 2.01a, 2.01b, 2.01c, American Psychological Association, 2002).
3	To appropriately assess the client's language history (1.b, 2.d, 6.a, 6.b, 6.c, American Psychological Association, 1993; Ethical Standard 9.02, American Psychological Association, 2002).
4	To conduct the neuropsychological evaluation in the client's preferred language (6.a, 6.b, American Psychological Association, 1993; Ethical Standard 9.02.c, American Psychological Association, 2002; IV, Department of Health and Human Services, 2002; IV, Department of Justice, 2002).
5	To also conduct an evaluation in a client's other language(s), when appropriate (Ethical Standard 9.02c, American Psychological Association, 2002; Paradis, 1987).
6	To identify the client's cultural contexts and acculturation process (9, American Psychological Association, 1993).
7	To (preferably) be fluent in the client's language or to use interpreters and translators that are professionals who have been trained and certified for the job they are asked to do, and follow professional ethics (6.a, 6.b, American Psychological Association, 1993; Ethical Standards 2.05, 9.03c, American Psychological Association, 2002; American Translators Association, 2002).
8	To have training and skill in the use of interpreters and/or translators, if they are used (VII.3, Department of Health and Human Services, 2002; VII.3, Department of Justice, 2002).
9	To identify the interpreter and/or translator's qualifications and include them in the report (9, American Psychological Association, 1993; Ethical Standards 9.02b, 9.03c, American Psychological Association, 2002).
10	To use psychometrists and other personnel that have been trained in cross-cultural and cross-linguistic work appropriate to their role (6.a, 6.b, American Psychological Association, 1993; Ethical Standard 9.03c, American Psychological Association, 2002; VII.3, Department of Health and Human Services, 2002; VII.3, Department of Justice, 2002).
11	To adapt informed consent to the client's language and cultural needs (1.b, American Psychological Association, 1993; Ethical Standards 9.03b, 9.03c, American Psychological Association, 2002).
12	To work with collaterals in a language in which they are competent (V., Department of Health and Human Services, 2002; V., Department of Justice, 2002).
13	To use tests that follow scientific standards and the International Test Commission's Test Adaptation Guidelines as closely as possible (International Test Commission, 2002).
14	To be responsible for selecting the most appropriate tests and norms for the situation (6.c, American Psychological Association, 1993; Ethical Standards 9.02a, 9.02b, 9.02c, American Psychological Association, 2002).
15	To identify in the report the version of tests and norms used, along with any limitations on interpretation based upon the use of such versions and norms (6.c, American Psychological Association, 1993; Ethical Standards 9.02a, 9.02b, 9.02c, American Psychological Association, 2002).
16	To identify possible effects of education on test interpretation (7.a, 7.b, American Psychological Association, 1993).
17	To minimize the use of non-normed, non-standardized tests and, when done, explain and describe in the report the rationale and limitations (6.c, American Psychological Association, 1993; Ethical Standard 9.02b, American Psychological Association, 2002).
18	To adapt the recommendations coming out of the evaluation to the cultural and linguistic context in which they will be applied (Ethical Standards 9.06 & 9.10, American Psychological Association, 2002; IV, Department of Health and Human Services, 2002; IV, Department of Justice, 2002).
19	To provide feedback that is cognitively, linguistically, and culturally accessible to its users (Ethical Standards 9.06, 9.10, American Psychological Association, 2002; IV, Department of Health and Human Services, 2002; IV, Department of Justice, 2002).
20	To work toward improving the cultural and linguistic accessibility of organizations providing and/or involved with clinical neuropsychological services (Office of Minority Health, 2001).

## Organizational Issues

### Reimbursement

Neuropsychological evaluation of Hispanics may take longer than usual due to the extra time that may be needed to establish rapport, evaluate acculturation and bilingualism, test abilities in two languages, and understand, integrate, and explain language and culture considerations in the report. If an interpreter is used, extra time is needed to prepare and debrief the interpreter and to repeat the information in each language. Thorough evaluation of Hispanics requires additional costs, such as purchase of additional tests and interpreter costs. Payers should be aware that neuropsychological evaluations of Hispanics are generally more expensive and time consuming than evaluations of majority culture individuals and that funding is allocated accordingly.

### Organizational Supports

Culturally and linguistically appropriate neuropsychological services go well beyond an evaluation by a neuropsychologist. The National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health Care (Office of Minority Health, 2001) devote seven standards to the organizational supports needed in healthcare organizations to ensure ongoing growth toward culturally and linguistically appropriate services. Cultural and linguistic concerns should be built into



institutional signage, patient paperwork, business procedures, training for all staff, strategic planning, self-assessment, patient data collection, community profiles, needs assessments, community outreach, public education, public participation and oversight, grievance procedures, and research. These standards can only be achieved through commitment to continual improvement over time. Neuropsychologists are encouraged to advocate for such changes within their institutions and professional organizations.

## Summary

Achieving competence and expertise in cross-cultural neuropsychology is an ongoing process that requires sustained commitment. A summary of the themes previously outlined is provided in Table 2. The information given in Table 2 can also serve as a checklist in preparing for an evaluation. The considerations set out in this paper represent a path for developing competence in the neuropsychological evaluation of Hispanic clients. These considerations reveal several areas of clinical and psychometric research that can be undertaken to advance our understanding of cross-cultural differences in assessment, and to improve day-to-day clinical practice. Practitioners and researchers should aspire to integrate these goals and objectives into their clinical practice, teaching, and research programs.

## Conflict of Interest

None declared.

## References

- Acevedo, A., Loewenstein, D. A., Barker, W. W., Harwood, D. G., Luis, C., & Bravo, M. et al. (2000). Category fluency test: normative data for English- and Spanish-speaking elderly. *Journal of the International Neuropsychological Society*, 6 (7), 760–769.
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders. Fourth Edition. Text Revision*. Washington, DC: American Psychiatric Association.
- American Psychological Association. (1993). Guidelines for providers of psychological services to ethnic, linguistic, and culturally diverse populations. *American Psychologist*, 48, 45–48.
- American Psychological Association. (2002). *Ethical principles of psychologists and code of conduct*. From <http://www.apa.org/ethics/code2002.html>
- American Psychological Association. (2003). Guidelines on multicultural education, training, research, practice, and organizational change for psychologists. *The American Psychologist*, 58 (5), 377–402.
- American Translators Association. (2002). *Code of professional conduct and business practices*. Retrieved January 14, 2004, from [http://www.atanet.org/membership/code\\_of\\_professional\\_conduct.php](http://www.atanet.org/membership/code_of_professional_conduct.php)
- Arguelles, T., Loewenstein, D., & Arguelles, S. (2001). The impact of the native language of Alzheimer's disease and normal elderly individuals on their ability to recall digits. *Aging and Mental Health*, 5 (4), 358–365.
- Burin, D. I., Jorge, R. E., Arizaga, R. A., & Paulsen, J. S. (2000). Estimation of premorbid intelligence: the word accentuation test – Buenos Aires version. *Journal of Clinical and Experimental Neuropsychology*, 22 (5), 677–685.
- Cabassa, L. J. (2003). Measuring acculturation: Where we are and where we need to go. *Hispanic Journal of Behavioral Sciences*, 25, 127–146.
- Cofresi, N. I., & Gorman, A. A. (2004). Testing and assessment issues with Spanish–English bilingual Latinos. *Journal of Counseling & Development*, 82, 99–106.
- Cross Cultural Health Care Program. (2000). *Medical interpreter code of ethics*. Retrieved November 21, 2004, from [www.xculture.org/interpreter/overview/ethics.html](http://www.xculture.org/interpreter/overview/ethics.html)
- Cuéllar, I., Arnold, B., & Maldonado, R. (1995). Acculturation rating scale for Mexican Americans-II: A revision of the original ARSMA scale. *Hispanic Journal of Behavioral Sciences*, 17, 275–304.
- Department of Health and Human Services. (2002). *Guidance to federal financial assistance recipients regarding Title VI prohibition against national origin discrimination affecting limited English proficient persons*. Retrieved January 14, 2004, from <http://www.hhs.gov/ocr/lep>
- Department of Justice. (2002). *Guidance to federal financial assistance recipients regarding Title VI prohibition against national origin discrimination affecting limited English proficient persons*. Retrieved January 14, 2004, from [www.hhs.gov/ocr/lep/guide.html](http://www.hhs.gov/ocr/lep/guide.html)
- Echemendia, R., Harris, J., Congett, S., Diaz, M., & Puente, A. (1997). Neuropsychological training and practices with Hispanics: A national survey. *The Clinical Neuropsychologist*, 11, 229–243.
- R. Ferraro (Ed.). (2002). *Minority and cross-cultural aspects of neuropsychological assessment*. Royersford, PA: Sweets & Jetliner.
- E. Fletcher-Janzen, T. L. Strickland, & C. R. Reynolds (Eds.). (2000). *Handbook of cross-cultural neuropsychology*. New York: Lower/Plenum.
- Gasquoin, P. G. (2001). Research in clinical neuropsychology with Hispanic American participants: a review. *The Clinical Neuropsychologist*, 15 (1), 2–12.
- Hambleton, R. K., Merenda, P. F., & Spielberger, C. D. (Eds.). (2005). *Adapting Educational and Psychological Tests for Cross-Cultural Assessment*, Mahwah, NJ: Lawrence Erlbaum.
- Hambleton, R. K., & Patsula, L. (1999). Increasing the validity of adapted tests: Myths to be avoided and guidelines for improving test adaptation practices. *Applied Testing Technology Journal*, Retrieved April 7, 2004, from: <http://www.testpublishers.org/jbook.html>
- International Test Commission. (2002). *International Test Commission test adaptation guidelines*, Retrieved January 14, 2004, from [www.intestcom.org](http://www.intestcom.org)
- La Calle, J. (1987). Forensic psychological evaluations through an interpreter: Legal and ethical issues. *American Journal of Forensic Psychology*, 54 (4), 29–43.

- Manly, J. J., Jacobs, D. M., Sano, M., Bell, K., Merchant, C. A., & Small, S. A. et al. (1999). Effect of literacy on neuropsychological test performance in nondemented, education-matched elders. *Journal of the International Neuropsychological Society*, 5 (3), 191–202.
- Marin, G., & Gamba, R. J. (1996). A new measurement of acculturation for Hispanics: The Bidimensional Acculturation Scale for Hispanics (BAS). *Hispanic Journal of Behavioral Sciences*, 18, 297–316.
- Marin, G., Sabogal, F., Marin, B. V., Otero-Sabogal, R., & Perez-Stable, E. J. (1987). Development of a short acculturation scale for Hispanics. *Hispanic Journal of Behavioral Sciences*, 9, 183–205.
- Melendez, F. (2001). Forensic assessment of Hispanics. In M. O. Pontón, & J. Leon-Carrion (Eds), *Neuropsychology and the Hispanic patient, A clinical handbook* (pp. 321–340). Mahwah, NJ: Lawrence Erlbaum.
- Muñoz-Sandoval, A. F., Cummins, J., Alvarado, C. G., & Ruef, M. L. (1998). *Bilingual verbal ability tests*. Itasca, IL: Riverside.
- Nell, V. (2000). *Cross-cultural neuropsychological assessment: Theory and practice*. Mahwah, NJ: Lawrence Erlbaum.
- Office of Minority Health. (2001). *National standards for Culturally and Linguistically Appropriate Services (CLAS) in health care*. Retrieved May 1, 2007, from <http://www.omhrc.gov/templates/browse.aspx?lvl=2&lvlID=15>
- Ostrosky, F., Ardilia, A., & Chayo, R. (1996). *Rehabilitación neuropsicológica*. Mexico, DF: Planeta.
- Paradis, M. (1987). *The assessment of bilingual aphasia*. Hillsdale, NJ: Lawrence Erlbaum.
- Pontón, M. O., & Ardila, A. (1999). The future of neuropsychology with Hispanic populations in the United States. *Archives of Clinical Neuropsychology*, 14 (7), 565–580.
- Pontón, M. O., González, J. J., & Mares, M. (1997). Psychotherapeutic interventions with head injured Hispanic patients. In J. León-Carrión (Ed.), *Neuropsychological rehabilitation: Fundamentals, innovations and directions* (pp. 513–529). Winter Park, FL: Saint Lucie Press.
- Pontón, M. O., & Leon-Carrion, J. (Eds). (2001). *Neuropsychology and the Hispanic patient: A clinical handbook*. Mahwah, NJ: Lawrence Erlbaum.
- Pope-Davis, D. B., & Coleman, H. L. K. (Eds). (1997). *Multicultural counseling competencies: Assessment, education and training, and supervision*. Thousand Oaks, CA: Sage.
- Puente, A. E., Adams, R., Barr, W. B., Bush, S. S., Ruff, R. M., & Barth, J. T. et al. (2006). The use, education, training and supervision of neuropsychological test technicians (psychometrists) in clinical practice. Official statement of the National Academy of Neuropsychology. *Archives of Clinical Neuropsychology*, 21 (8), 837–839.
- Rosselli, M., & Ardila, A. (2003). The impact of culture and education on non-verbal neuropsychological measurements: a critical review. *Brain and Cognition*, 52 (3), 326–333.
- Stansfield, C. W. (2003). Test translation and adaptation in public education in the USA. *Language Testing*, 20, 189–207.
- Sue, D. W., & Sue, D. (1999). *Counseling the culturally different: Theory and practice* (3rd ed.). New York: Wiley.
- U.S. Census Bureau. (2006). *Facts for features. Hispanic heritage month*. Retrieved February 20, 2007, from [http://www.census.gov/Press-Release/www/releases/archives/facts\\_for\\_features\\_special\\_editions/007173.html](http://www.census.gov/Press-Release/www/releases/archives/facts_for_features_special_editions/007173.html)
- Umbel, V. M., Pearson, B. Z., Fernandez, M. C., & Oller, D. K. (1992). Measuring bilingual children's receptive vocabularies. *Child Development*, 63 (4), 1012–1020.