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Initial Practice Recommendations for Teleneuropsychology

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Telemedicine refers to the use of electronic communications to deliver health-related services from a distance, and is particularly useful in bringing specialty services to remote and/or underserved areas. Despite the increasing use of videoconference technology in psychology, there are very few guidelines to direct practitioners as to the ethical practice and utilization of telemedicine, and even fewer resources for practitioners of telecognitive assessment or teleneuropsychology. This paper seeks to outline several practical and ethical considerations that are relevant to the practice of telecognitive assessment and to assist practitioners in providing safe, ethical, and competent care to their patients by proposing some initial practice recommendations.

Keywords: Telemedicine; Ethics; Assessment.

INTRODUCTION

Telemedicine is the use of electronic communications to deliver health-related services from a distance, and is particularly useful in bringing specialty services to remote and/or underserved areas (Hilty, Luo, Morache, Marcelo, & Nesbitt, 2002). Mechanisms of delivery include e-mail, wireless phones, two-way videoconferencing, chat rooms, and virtual reality programs, among others. For the purposes of this paper our discussion will be limited to live, real-time, two-way, audiovisual videoconferencing.

Videoconferencing (VC) technologies have been in use for a number of years and are continually expanding as a practical means of delivering health-related services. VC technology, allowing for real-time two-way audiovisual interactions between remote sites, offers several advantages over traditional face-to-face interactions, a primary one being extended access to health services. Using VC technology these services can be offered to individuals that would not otherwise have access, such as persons living in rural settings, those with insufficient healthcare resources in their community, disabled individuals with limited mobility, service members deployed to remote settings, victims of natural disasters, etc. More than ever, telemedicine is being utilized to deliver psychiatric services to rural and otherwise underserved populations (Freuh et al., 2000; Hilty et al., 2002; Jacobsen, Sprenger, Andersson, & Krogstad, 2003). Unfortunately, the specialty of neuropsychology has been limited in many rural settings by the need for face-to-face

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contact and a shortage of qualified specialists in these areas (Hildebrand, Chow, Williams, Nelson, & Wass, 2004). However, with the increasing prevalence of VC technology, neuropsychological services may be made available to individuals who previously would not have had access to them.

From an economic standpoint, telemedicine has been shown to reduce the cost of health care (American Telemedicine Association, 2009). This is particularly important as we try to make healthcare as accessible and affordable as possible (American Psychological Association, 1997). Telemedicine may also dramatically affect healthcare costs by providing more prompt and efficient services through earlier diagnosis and treatment and better management of chronic diseases.

Specific services provided using VC technologies may include remote diagnosis and treatment, patient monitoring, patient consultation, and medical education. In the field of mental health applications include psychiatric interviews, follow-up visits with patients and their families, psychotherapy, and psychiatric assessments (van Wynseberghe & Gastmans, 2009). It has been shown that VC-based interviews provide adequate information for clinicians to establish a variety of diagnoses including dementia as well as common psychiatric disorders such as depression, anxiety, and psychotic disorders (Hyler, Gangure, & Betchelder, 2005; Shores et al., 2004; Simpson, Doze, Urness, Hailey, & Jacobs, 2001; O'Reilly et al., 2007). Until recently little attention has been devoted to the use of psychological assessment, although the application of VC technology to conduct neuropsychological testing has proven feasible (see e.g., Cullum, Weiner, Gehrman & Hynan, 2006). According to the American Telemedicine Association (2009), mental health is one of the most widely used applications of telemedical services in the United States.

Despite the increasing use of VC technology in psychology and mental health applications, there are very few guidelines to direct practitioners as to the ethical practice and utilization of telemedicine. There are even fewer resources for practitioners of telecognitive assessment, and no specialty guidelines exist to date, despite the unique ethical challenges raised by the use of this technology (Bush, Naugle, & Johnson-Greene, 2002; Schatz, 2005). Guidelines such as these are necessary to ensure that assessment, treatment, and quality of care in VC encounters are equivalent to traditional face-to-face approaches (see e.g., American Telemedicine Association, 2009; Koocher, 2007).

Thus far the American Psychological Association (APA) has published no specific guidelines for this practice niche, and directs telemedicine practitioners to simply review "the characteristics of the services, the service delivery method, the provisions for confidentiality, and licensure board rules" (American Psychological Association, 1997, p. 1). Furthermore, the Ethics Code of the American Psychological Association (hereafter referred to as the Ethics Code) does not specifically address the use of remote, electronically delivered services. Instead it requires practitioners to apply existing standards in place regarding "emerging areas" of practice (American Psychological Association, 2002, Standard 2.01(e), Boundaries of Competence, p. 1064). However, the APA has recently established a task force to develop national guidelines for telepsychology practice (Novotney, 2011). The creation of this task force is an important step in providing support for practitioners, although guidance specifically directed towards those practicing teleneuropsychology is still needed. Along these lines, APA Division 40, the

National Academy of Neuropsychology (NAN), and the International Neuropsychological Society (INS) all have technology sub-committees, which may begin dealing with related issues (Brown dyke, 2005).

The American Psychiatric Association has published guidelines for the practice of psychiatry via telemedicine to ensure “confidentiality, ethical practices, and risk management” (American Psychiatric Association, 1998, p. 1). While these guidelines are helpful, they are quite general in nature; psychologists need more specific guidance that applies directly to issues that arise in the context of neuropsychological practice.

The American Telemedicine Association has also delineated a set of guidelines to encourage “coherent, effective, safe, and sustainable telemental health practices,” but these are designed to provide overarching guidance to all areas of mental health and reflect “basic component processes associated with most telemental health consultations” (American Telemedicine Association, 2009, p. 4). As such, these guidelines are also quite general (e.g., “determine a process for documentation storage,” “ensure that the standard of care delivered via telemedicine is equivalent to any other type of care that can be delivered to the patient/client”) and do not address more specific concerns regarding neuropsychological assessment (American Telemedicine Association, 2009, p. 7–8).

In summary, there is a need for more specific guidelines to direct practitioners, particularly with respect to the unique ethical challenges presented by telecognitive assessment. Below we discuss some of the issues that may be relevant when working in this context, including informed consent, privacy and confidentiality, competence, licensure and billing issues, and assessment-specific concerns such as test validity and applicability of extant norms. Additionally, we discuss issues of technical equipment requirements, staffing needs, and competence with special populations. This paper seeks to highlight several practical and ethical considerations that are germane to the practice of teleneuropsychology and to propose recommendations that may assist practitioners in providing safe, ethical, and competent care.

INFORMED CONSENT

According to Standard 9.03(a) of the Ethics Code (Informed Consent in Assessments), consent must be obtained for assessments, evaluations, or diagnostic services except in very specific situations as outlined in the Code (American Psychological Association, 2002, p. 1071). (For a detailed discussion of informed consent, see Beauchamp & Childress, 2009). When appropriate, practitioners are also to obtain informed consent regarding any *modified* services provided, such as consent to communicate and share information electronically (Hyler & Gangure, 2004). In this context informed consent may include several components including, but not limited to, an explanation of the nature and purpose of the assessment, limits of confidentiality, and how those limits may apply to security of information transmitted over the Internet. This is particularly important in telemedicine as information is being shared across a long distance, potentially resulting in a higher risk of confidential information being compromised as it is transmitted across networks. The further information has to travel (particularly with wireless connections), the more opportunities there are for potential breaches in security.

While encryption and other security measures should be in place, patients should still be made aware that security can never be assumed when information is shared over wireless connections (Bush et al., 2002).

Informed consent modified for this purpose may also include information regarding retention and storage of a patient's medical records. For example, will files or data be kept at both the local and remote locations? Confidentiality and safety of electronically stored data must be addressed, particularly if electronic copies of patient interactions are retained. The informed consent process should also include information regarding the involvement of third parties when applicable, since there may be others involved simply by the nature of the technology (e.g., when additional technicians may need to become involved in setting up and/or troubleshooting VC sessions). As with any procedure, the practitioner should ensure that patient is informed regarding the potential risks of the procedure, including those specific to VC-based assessment. For example, risks may include an increased chance of loss of privacy depending on the nature of the connection (i.e., due to hackers or insufficient data encryption) or feelings of less personalized care when the practitioner appears on a television or computer screen (van Wynsebergh & Gastmans, 2009). Finally, a statement regarding modifications to administration or scoring procedures should be considered when appropriate (see below).

As with other standard medical and psychological procedures, patients should be informed of their right to refuse to participate in VC-based evaluations and the appropriate alternatives available to them. One is well advised to allow an opportunity for the patient to ask questions; this is especially important in the context of VC assessment since the process may be unfamiliar to them and may evoke more questions. For example, undergoing evaluation with a practitioner across the country may be confusing, and it is important that they know whom to contact with questions or concerns.

PRIVACY AND CONFIDENTIALITY

Privacy is defined as "an individual's claim to control the use and disclosure of personal information" (Hyler & Gangure, 2004, p. 274). Confidentiality refers to "the obligations of psychologists to protect the privacy of patient information" (Knapp & VandeCreek, 2006, p. 111). Standard 4.01 of the Ethics Code (Maintaining Confidentiality) states that "psychologists have a primary obligation and take reasonable precautions to protect confidential information obtained through or stored in any medium" (American Psychological Association, 2002, p. 1066). With this in mind, there are some additional factors that arise when dealing with teleneuropsychology.

Related to the technology itself, ensuring that equipment and connections are secure is essential (Fisher & Fried, 2003; Hyler & Gangure, 2004; Sokol & Car, 2006). This includes the use of a VC system that addresses factors such as network design between the physical components of the system, data encryption procedures, and utilization of firewalls, gateways, or other devices to prevent the network from being compromised (Kuhn, Walsh, & Fries, 2005). Some Internet connections are less secure than others (e.g., dial-up vs Ethernet with firewalls), and wireless connections may be particularly vulnerable to inadvertent data disclosure.

Furthermore, questions regarding HIPAA compliance with various types of connections are often not clearly addressed. For example, there remains debate as to whether Skype (2010), the popular videoconference utility, is HIPAA compliant with regards to security of information (Novotney, 2011; Watzlaf, Moieni, & Firouzan, 2010). The HIPAA Security Rule outlines administrative, physical, and technical measures to safeguard electronic protected health information, and it is not yet clear if various systems are in compliance with these measures.

Another factor to consider is the potential presence of third parties such as technicians or video operators/technicians, as their presence increases the likelihood of an infringement on privacy and confidentiality. To protect against breaches of privacy and confidentiality as much as possible, the evaluation should be conducted in areas where there is little likelihood that people who are not involved in the patient's treatment will have access to any information regarding that individual (American Psychiatric Association, 1998). Additionally, the practitioner should make the patient aware of all people in his or her room. This can be done by panning the practitioner's room with the camera or by simply identifying all individuals present in the room, as is the convention on conference calls. Moreover, the practitioner should work to ensure that no other individuals enter the room without the patient's knowledge and permission at any point during the session. On the patient's side, it should also be ascertained that the patient is alone for neuropsychological testing as often as possible, as third party observation is generally discouraged due to the unknown influences on test performance (see e.g., NAN Policy and Planning Committee, 2000) or the potential for unseen coaching or access to various other sources of information or means of potentially enhancing test performance (e.g., writing down notes, or accessing books or the internet for information).

Finally it should be made clear to the patient (preferably in a written consent form) that privacy cannot always be guaranteed in the practice of telemedicine even when all appropriate precautions are taken (American Psychiatric Association, 1998). It is also recommended that patients be informed of the recourse they may have under HIPAA guidelines should a security breach occur (Browndyke, 2005). By discussing these issues openly with the patient at the outset, the practitioner allows for improved informed consent that may avoid misunderstandings in the future.

COMPETENCE

Neuropsychological service delivery via VC is a new and rapidly evolving area, and no specific competencies for this practice have yet been developed. However, it has been recommended that professional use of VC and similar technologies be held to the same training requirements as other professional skills (Bush et al., 2002). As such, further research and consideration regarding ethical requirements may be needed. Until that time the American Psychological Association recommends that psychologists follow current standards, primarily those regarding boundaries of competence (American Psychological Association, 1997). On this topic, Standard 2.01(e) of the Ethics Code (Boundaries of Competence) states: "In those emerging areas in which generally recognized standards for preparatory training do not yet

exist, psychologists nevertheless take reasonable steps to ensure the competence of their work and to protect clients/patients, students, supervisees, research participants, organizational clients, and others from harm” (American Psychological Association, 2002, p. 1064).

This statement reflects the general principle of “do no harm,” but it does not provide any detailed guidance regarding the practice of telemedicine or telecognitive assessment. The Ethics Code further states in Standard 2.01(a) (Boundaries of Competence) that “psychologists provide services, teach, and conduct research with populations and in areas only within the boundaries of their competence, based on their education, training, supervised experience, consultation, study, and or professional experience” (American Psychological Association, 2002, p. 1063). This includes taking steps to receive necessary education, training, and continuing education not only in their specific area of practice (e.g., neuropsychological assessment), but also in factors specific to telemedicine and information technology in such a setting. Bush and colleagues (2002) recommend including this type of instruction as part of graduate training programs; for example, coursework on basic computer security and on the ethical use of information technology in neuropsychology. The APA has recently offered several continuing education workshops on telehealth, and the American Telemedicine Association offers online courses and holds annual conferences focusing on a variety of telemedicine-related subject areas and specialties where practitioners can receive additional training. Organizations such as the International Society for Telemedicine and eHealth (ISfTeH) offer additional resources and an online forum to disseminate current research. Practitioners using telemedicine should remain current in their knowledge of research in this area and the factors that may affect quality of care and impact test results. For example, in telepsychology applications, seemingly minor factors such as adjusting the cameras to appropriate angles and ensuring that volume is at a comfortable level can have an impact on rapport with patients (Novotney, 2011), as well as test performance. Additionally, VC-based test administration may result in subtle alterations in the assessment experience that may alter performance. While most auditory/verbal neuropsychological measures studied to date have demonstrated good correspondence between VC and traditional face-to-face assessment (Cullum et al., 2006), a majority of tests in common clinical use have not yet been examined within the VC context. Whereas some tests may not require reliability studies due to the likely minimal impact of the VC medium (e.g., many question–answer items such as word definitions), it is essential that practitioners be aware of potential limitations so that test interpretations are appropriately qualified.

ASSESSMENT-SPECIFIC CONSIDERATIONS

Remote assessment can introduce several ethical challenges of its own, including the application of specific standardized measures. Standard 9.02 (Use of Assessments) of the Ethics Code is particularly relevant to this issue (American Psychological Association, 2002, p. 1071):

9.02(a). Psychologists administer, adapt, score, interpret, or use assessment techniques, interviews, tests, or instruments in a manner and for purposes that are appropriate in

light of the research on or evidence of the usefulness and proper application of the techniques.

9.02(b). Psychologists use assessment instruments whose validity and reliability have been established for use with members of the population tested. When such validity or reliability has not been established, psychologists describe the strengths and limitations of test results and interpretation.

First, preliminary research has examined the comparability of scores obtained via videoconferencing and in-person administration for several standard neurocognitive instruments (Cullum et al., 2006). Based on these data, practitioners may be tempted to assume that since some tests have been shown to be valid and appropriate for use in telemedicine, others would meet these criteria as well, but this may not be the case. It is important to keep in mind that any equivalence studies are limited to the particular measures used and populations tested (Browndyke, 2005). Additionally, VC-based assessment sometimes requires modifications in test instructions and procedures, and the potential effects of these modifications need to be better understood and should not be underestimated.

Second, a practitioner's ethical responsibility to maintain psychometric standards and test integrity is the same regardless of whether she or he works in a conventional setting or remotely, via telemedicine (Barak, Buchanan, Kraus, Zack, & Stricker, 2004; Lievens, 2006; Naglieri et al., 2004). Care should be taken to ensure that the VC interaction mimics traditional face-to-face test administration as much as possible. Clearly some tests do not require modification for VC administration, as it does not change the instructions or nature of stimulus presentation (e.g., WAIS-IV Vocabulary, Information, etc.; Wechsler, 2008). Self-report questionnaires would fall under this category as well, but would require the availability of test forms at the remote site, or presentation on the TV monitor (which may also raise copyright issues that would need to be addressed). The issue of the potential effect of VC administration on timed tasks dependent on visual and auditory stimuli has been addressed for only a handful of standard measures (Cullum et al., 2006). For example, tests such as verbal list learning (e.g., Hopkins Verbal Learning Test-Revised; Brandt & Benedict, 2001) and digit span appear to offer similar results regardless of administration condition. However, little is known about how results compare on tasks requiring manipulables (e.g., WAIS-IV Block Design), particularly as these would require altered administration instructions and necessitate the availability of test stimuli at the remote site. The authors are currently investigating the administration of Block Design and other nonverbal measures without the presence of a technician at the remote end in an effort to minimize staffing requirements. If test instructions and/or procedures are altered significantly for VC administration, modified test scores and possibly different norms may be needed.

Since there has been limited research on the validity and reliability of many assessment instruments via videoconferencing, it is suggested that it may be useful for practitioners to describe the limitations of their method in their reports. For example, certain nonverbal behavior may be more difficult to observe, causing qualitative or process details to be missed. Furthermore, the prudent evaluator

would be well advised to mention any unique situational factors that might have affected the validity of their results.

Finally, scoring procedures over the videoconferencing system should be standardized and as accurate as possible in order to ensure that they are comparable to face-to-face scoring (American Telemedicine Association, 2009; Ball, Tyrrel, & Long, 1999). For example, will the practitioner have the patient or an assistant hold the patient-produced material up to the screen for preliminary scoring (e.g., clock drawing), or will the material be scanned or faxed? The use of document cameras for stimulus presentation and/or response recording may also be considered. When using alternative methods of testing and scoring in clinical settings, it may be worth mentioning in the report that scores were obtained in this manner, particularly if the data transmission produced results that were unclear.

LICENSURE AND BILLING ISSUES

One major hurdle to telehealth practice relates to licensing requirements. All U.S. states and Canadian provinces require that a psychology practitioner be licensed in the state/province where they practice. The question is, in which state is the “practice” occurring—the state where the patient resides, or the state in which the practitioner is licensed? In the case of telecognitive assessment, the answer is both.

Because most psychology boards view services as being provided both where the psychologist *and* the patient are located, licensure in both jurisdictions may be required when providing out-of-state services. The rationale for this view is that doing so offers the state where the patient is located some control over the practitioner even if he or she never physically enters the state. It also puts the responsibility for ensuring the safety and quality of services on the state in which the patient is located (Hylar & Gangure, 2004). While this is in the interest of patient protection, it does make the practice of telemedicine more complicated. Although the issue of interjurisdictional practice is starting to be addressed by state boards and other professional organizations, for the time being, it is generally recommended that licensure be obtained in both states. Below we discuss several points related to the recent focus on facilitation of interjurisdictional practice.

A survey by Koocher and Morray (2000) indicated that there is a great deal of variability among licensing jurisdictions with regard to interjurisdictional practice, leaving psychologists with unclear guidelines. The practitioner delivering the services must be mindful of state and national requirements regarding licensure and credentialing, and the American Telemedicine Association recommends that all telemedicine clinics have “agreements in place to assure licensing, credentialing, training, and authentication of patients and practitioners as appropriate” (American Telemedicine Association, 2009, p. 7). However, these guidelines apply only to those who work remotely but within a particular jurisdiction. Unfortunately there is currently no national regulation that allows the practice of psychology across state lines, and only three states have telehealth laws that apply to psychologists (California, Kentucky, and Vermont) (American Psychological Association Practice Organization, 2010). On the other hand, there are temporary licensure provisions that can be obtained in most states, which allow psychologists

who are licensed in another state to practice for a certain number of days per year in their state. In addition to advance notification, there may be other requirements needed to obtain these privileges such as proof of being in good standing with one's own board, and/or local supervision or sponsorship. It is recommended that psychologists check with the specific state board(s) to ensure all requirements are fulfilled prior to the initiation of services (American Psychological Association Practice Organization, 2010). Recently, the Association of State and Provincial Psychology Boards (ASPPB) developed a certificate to facilitate interjurisdictional practice. This certificate, called the Interjurisdictional Practice Certificate (IPC), grants short-term authorization to practice in a state other than the one in which an individual is licensed. However, at this time only a few states, including Georgia, Idaho, and South Carolina, have accepted the IPC. Ohio and Wisconsin are currently in the process of adopting the certificate (Association of State and Provincial Psychology Boards, n.d.). Additionally, the Centers for Medicare and Medicaid Services (CMS) have recently adopted a new rule that will streamline the credentialing and privileging of telehealth providers delivering services to Medicare hospitals, marking an important step in removing administrative burdens for practitioners (Centers for Medicare and Medicaid Services, 2011). With respect to reimbursement issues, Medicare has given approval for billing of telemedicine-based services (Centers for Medicare and Medicaid Services, n.d.), including approval for the use of CPT code 96116 (Neurobehavioral status examination). However, at present, most states have not developed consistent reimbursement practices for teleconference-based neuropsychological evaluations, and as such, practitioners wishing to establish VC-based services should check with regional insurance providers to obtain the latest information.

TECHNICAL SPECIFICATIONS

It is incumbent upon the practitioner to ensure that the quality of care is as close to the same via videoconferencing as it would be face to face. In this regard there are certain technical specifications that are recommended for teleneuropsychology, primarily to ensure the practitioner can do his or her job adequately and to protect against breaches of privacy and confidentiality. For example, the equipment used should be of sufficient quality to ensure adequacy of both sound and picture. If the quality of transmission is poor, important verbal and nonverbal information may be lost. If there are lapses in sound during testing, the validity of some results may be compromised. This issue is particularly important when administering tests that are timed and those that rely heavily on repetition, auditory attention, and verbal memory. Technical problems may also present obstacles to observation of patient behaviors if pauses in video transmission disrupt a continuous and clear view of the patient's behavior. If the quality of transmission is poor during a portion of the assessment, the practitioner will need to decide how to handle this (e.g., repeating instructions, providing additional clarification, re-administering a test or a portion thereof, or potentially consider using an alternate form of the test later in the examination, etc.), along with evaluating how such deviations from standard administration may affect test results.

As with traditional assessments, conditions or extraneous events may affect the validity of patient responses (e.g., reduced hearing or volume that could not be corrected to adequate levels, or extraneous noises/events) and should be documented in the patient's record. Along these lines, the American Telemedicine Association specifically recommends that reports include mention of the fact that the data were obtained via video images, and mention should be made of any technical difficulties that the practitioner felt interfered with the session and the extent to which the data may have been compromised (American Telemedicine Association, 2009). Minor VC transmission problems such as occasional sound delays that do not have an impact on valid or successful completion of the evaluation may not need to be noted, or it may be worth mentioning that no such transmission difficulties arose.

Whereas standardization of assessment procedures has been discussed, the issue of standardized equipment/technology has not. Currently there is no gold standard for equipment use in teleneuropsychology. This may not be an issue to the extent that assessments consist of measures that require little to no administration or scoring changes for VC-based testing. However, for tests that require greater modifications and possibly additional technological components (e.g., extra video cameras, document cameras, etc.), it may be necessary to consider the development of equipment specifically for this purpose, in order to achieve greater standardization. At the very least, minimal standards for factors such as screen size/resolution, patient visibility and audio quality at both ends should be considered.

SPECIAL POPULATIONS

One of the potential applications of teleneuropsychology is for the rural elderly population. In part, this is because rural communities typically have a larger elderly population than many urban areas (Roberts, Battaglia, & Epstein, 1999). Furthermore, there is decreased mobility in this population and therefore an increased need for services to be provided in their own communities rather than requiring them to travel. Early studies suggest that VC technology is a particularly useful way to help extend neuropsychological testing specifically to rural elderly populations (Ball & Puffett, 1998; Hildebrand et al., 2004; Shores et al., 2004); however, there are specific ethical considerations that may arise in this context. For example, when working with an elderly patient the practitioner must be particularly cognizant of sensory deficits that may impact the patient's ability to perform telecognitive testing. Preliminary research with this population suggests that minor sensory deficits do not appear to interfere with testing or results, so long as appropriate measures are taken to compensate for them, such as volume control or magnifying procedures (Cullum et al., 2006). Furthermore there may be a greater need to include family members in the process if there are questions regarding the patient's ability to fully understand and appreciate all aspects of the procedure and results obtained. Additionally, there had originally been a question among telemedicine practitioners as to whether the elderly would be more uncomfortable with the technology due to its novelty. However, research on this subject shows that elderly populations do not appear to be uncomfortable with the technology and that, in most situations, a practitioner need not have an extender present

(Ball & Puffett, 1998; Cullum et al., 2006; Shores et al., 2004). Our own experience suggests that following an initial several minutes of interaction via VC to help develop rapport and familiarize the patient with the VC environment, most patients adapt quickly and the interaction is much like a traditional face-to-face situation. Such initial VC interactions can be conducted by an assistant who may also be responsible for establishing the VC connection, verifying that equipment are working correctly, and collecting preliminary information (e.g., verifying the patient's identity, obtaining billing information, etc.).

Since many of the regions where telepsychology and telemedicine applications may be useful are geographically isolated, it is also important to be aware of resources available in the remote setting in case of emergency situations (e.g., a patient expressing suicidal intentions) and to have a contingency plan in place. It has been recommended that psychologists obtain written authority to contact identified family members and other treating professionals in the patient's location in case of an emergency (Novotney, 2011).

PSYCHOMETRISTS AND OTHER STAFF

Psychometrists are frequently employed to assist with the administration and scoring of neuropsychological tests, as well as to observe examinee behavior, under the supervision of a licensed neuropsychologist. The National Academy of Neuropsychology recommends that supervision include direction as to the tests to be administered and scoring system to be used (Puente, Adams, Barr, & Bush, 2006). As the psychometrist is often an integral part of test administration, training and supervision in the unique administrative and ethical challenges involved with telecognitive assessment will be critical. Several of the issues discussed above, such as competence (with the technology in particular), confidentiality, and maintaining test integrity apply to psychometrists as well and should be included as part of the training and supervision process.

Additionally, the American Telemedicine Association recommends that practitioners ensure that there is appropriate staff available before, during, and after all videoconferencing encounters to meet patient needs (American Telemedicine Association, 2009). When employing telecognitive assessment, staff at the remote location should ensure that necessary testing supplies such as test stimuli or paper/pencils for recording responses are ready before patients arrive and are easily available to patients. Finally there should be a staff member accessible to assist with any technical difficulties or other issues that may arise during testing.

RECOMMENDATIONS

In this section we propose an initial set of general recommendations for practitioners who wish to pursue teleneuropsychology via VC (Table 1). We offer these recommendations as an initial step and expect that they will be reviewed, expanded, and revised within the profession based on continued review, as well as with scientific and technological advances.

Table 1 Proposed recommendations for videoconference-based neurocognitive assessment (teleneuropsychology)

Informed consent

- Teleneuropsychology practitioners should obtain specific informed consent regarding any *modified* services provided.
- This consent should contain several components including but not limited to an explanation of the nature and purpose of the assessment, limits of confidentiality, and how those limits may apply to security of information transmitted over the Internet or videoconferencing connection.
- Additionally, consent should include information regarding retention and storage of patients' information and data, as well as the involvement of third parties who may have access to private health information.
- The practitioner should highlight the risks and benefits inherent to telecognitive assessment procedures and allow ample opportunity for the patient to ask questions regarding the procedure and possible alternative assessment avenues.

*Privacy and confidentiality**

- Teleneuropsychology practitioners should establish security protocols such as data encryption to ensure maximum protection of protected health information.
- Practitioners should make patients aware of all people in both rooms, either verbally or by panning the camera across the room.
- Practitioners should emphasize to the patient (preferably in a written consent form) that privacy cannot always be guaranteed in the practice of teleneuropsychology, even when all appropriate precautions are taken.

Competence

- Practitioners should take reasonable steps to ensure competence in the practice of telecognitive assessment, including appropriate experience and education, to the extent possible.

Assessment

- Teleneuropsychology practitioners, when possible, should utilize tests that have been empirically demonstrated to be appropriate for use in telecognitive assessment. For all tests, care should be taken to ensure that the videoconference interaction mimics traditional face-to-face test administration as much as possible.
- Practitioners should describe limitations of videoconferencing, including administration or scoring changes, in their written report. This should include a discussion of how any changes may have affected results or interpretation.
- Additionally, practitioners should describe any interruptions of transmission or other unique situational factors that may have affected test administration.
- For administering certain tests that require writing and drawing, there should be a system in place to transmit test data to the practitioner (e.g. faxing or scanning).

*Licensure**

- Until clear laws regarding interjurisdictional practice are developed, or unless otherwise specified by state laws, it is suggested that psychologists obtain licensure in both jurisdictions, obtain temporary licensure in the remote state, or obtain an Interjurisdictional Practice Certificate in states where it has been adopted.
- The practitioner should inform patients of their licensure status and the applicable state licensure board in the case that the patient would want to make a complaint.

Technology

- High-quality videoconferencing equipment should be used with adequate transmission speed in order to optimize sound and picture quality. The practitioner should be aware of any equipment necessary
-

(continued)

Table 1 Continued.

for telecognitive assessment in particular (such as cameras that can be remotely controlled to view all components of the assessment) and make an effort to utilize such equipment.

- There should be staff at the remote location to assist with provision of supplies, assistance with technical difficulties, or other issues that may arise. Staff members should not be present in the room during testing but should be available to the patient in case of problems.
-

*These recommendations are not specific to telecognitive assessment, but rather apply to teleconference-based services in general.

SUMMARY AND CONCLUSION

Telemedicine and videoconferencing are increasingly being used to deliver healthcare services, and psychologists are in need of guidelines and standards of care that address issues relevant to practice in this unique area. Some issues of particular relevance include informed consent, privacy and confidentiality, competence, licensure and billing requirements, and assessment-specific concerns such as test validity and applicability of standard procedures and extant norms. Also of interest are issues of technical equipment requirements, staffing needs, and competence with special populations. The future of telemedicine and telecognitive assessment or teleneuropsychology is promising, and would benefit from guidelines and recommended standards of care to direct practitioners in providing the highest level of care that is equivalent to traditional in-person services. This situation has not yet been realized; we offer the above recommendations as a first step.

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