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# Speech-Language Pathologists Providing Clinical Services via Telepractice: Technical Report

*Working Group on Telepractice*

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## About This Document

This technical report was developed by the Telepractice Working Group, which was appointed as part of the 2001–2003 Focused Initiative on Technology. Members of the committee include: Amy C. Georgeadis, Gregg Givens, Mark Krumm (chair), Pauline A. Mashima, John M. Torrens, and Janet Brown (ASHA staff liaison). Celia Hooper, vice president for professional practices in speech-language pathology, 2003–2005, served as monitoring vice president.

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## Introduction

Telepractice is the application of telecommunications technology to deliver professional services at a distance. The use of telepractice does not remove any existing responsibilities in delivering services, including adherence to the Code of Ethics (ASHA, 2003), Scope of Practice (ASHA, 2001a), state and federal laws (e.g., licensure, HIPAA, etc.), and ASHA policy documents on professional practices. Therefore, services delivered via telepractice must adhere to the same level of quality as services delivered face-to-face. According to the Code of Ethics, clinical services provided solely by correspondence should not be considered acceptable applications of telepractice. Any clinical service must be appropriate based on the unique needs of the client. Telepractice is not appropriate in all circumstances, and a variety of factors need to be considered.

Since 1998, ASHA has studied the potential impact of telepractice on speech-language pathologists (SLPs) and the individuals they serve. This technical report summarizes evidence to date about the use of telepractice in speech-language pathology and discusses future directions and research.

## Definition of the Topic

According to the Agency for Healthcare Research and Quality (AHRQ, 2001), telemedicine is "...the use of telecommunications technology for medical diagnostic, monitoring, and therapeutic purposes when distance separates the users." In the past, telemedicine dealt exclusively with medical applications by physicians using advanced technology. In the 1997 Comprehensive Telehealth Act, the broader term of "telehealth" was used to refer to services delivered by non-physician as well as physician providers. Telehealth is the expansion of telemedicine to include applications across the full spectrum of the health sciences including but not limited to: audiology, speech-language pathology, nursing, occupational therapy, physical therapy, pharmacy, physical education and health promotion, dentistry and dental hygiene, in addition to medicine (Bashshur, Reardon, & Shannon, 2000; Books, Sun, Boal, Poropatich, & Abbot, 2002; Burgess et al., 1999; Eikelboom, Atlas, Mba, & Gallop, 2002; Hassol et al., 1996; Mun & Turner, 1999). The term "telepractice" was adopted by ASHA in 2001 to encompass a range of services provided through telecommunications technology that are not exclusively health related, including clinical services for communication enhancement, and education and supervision. This technical report will address telepractice services as they relate to clinical service delivery.

## Benefit of Telepractice

One of the most commonly recognized benefits of telepractice is the opportunity for clients to have improved access to services (Buckwalter, Wakefield, Kienzle, & Murray, 2002; Farmer & Muhlenbruck, 2001; Ricketts, 2000). This includes the opportunity to receive services that previously were not available due to: distance from health care facilities; lack of clinicians or specialized clinicians in a

### **Limitations of Telepractice**

geographic area; and lack of transportation. When extensive travel is required to access services, factors such as fatigue and reduced mobility may also affect the client's desire to seek services or capability to benefit from services (Karp et al., 2000). Clients may also limit or decline services due to an unwillingness to disrupt their work schedules or the schedules of working family members to commute or provide transportation to distant health care facilities. Other benefits of telepractice include the opportunity for clients to receive services in their natural environment (in the case of home telepractice); thus, treatment can take a more functional focus by including family/caregivers and the client's real life situations (Whitten, Doolittle, Mackert, & Rush, 2003). If the client needs to consult multiple providers for complex health or rehabilitation needs, continuity of care may be facilitated through the use of telepractice (Marcin et al., 2004). By eliminating distance considerations, telepractice offers the potential to make services available globally (Bashshur, Reardon, & Shannon, 2000; Karp et al., 2000; Marcin et al., 2004; Ricketts, 2000).

In some circumstances, outcomes may be enhanced through telepractice. For culturally and linguistically diverse clients, telepractice affords a greater opportunity for bilingual clinicians or providers with interpreters to reach non-English speaking clients or geographically isolated populations (e.g., Native American reservations). Providing services in the client's natural environment rather than bringing the client to a health care facility affords the clinician a greater understanding of the client's functional needs. This may also enhance the support, involvement, and training of other individuals in the environment.

Other reported benefits of telepractice in both school and health care settings include increased motivation and responsiveness of the client due to the technological aspects of the treatment (Brennan, Georgeadis, Baron, & Barker, in press). The versatility and increased capacity of the technology provide access to a larger repertoire of materials (e.g., computer software programs) and technical capability that can enhance interest and successful outcomes (Farmer & Muhlenbruck, 2001; Hassol et al., 1996; Karp et al., 2000; Marcin et al., 2004).

From an economic perspective, receiving services via telepractice eliminates the direct cost of travel and indirect costs of lost work productivity associated with travel time for clients and accompanying family members. Telepractice can increase work efficiency and productivity of clinicians by eliminating the need to travel great distances for home health care or to satellite clinics. Telepractice can also eliminate the need to cancel sessions due to poor weather conditions.

The inability to have direct physical contact with the client is a primary difference between telepractice and traditional face-to-face service delivery. Physical contact with a client is used by clinicians for cuing, reinforcement, tactile manipulation, and stimulation, and to assess strength and tone. In the telepractice environment, this must be provided in alternative ways, such as training a family member or paraprofessional at the remote site, or using visual/verbal means. Depending on the location of the camera, sustaining eye contact between client and clinician can also be more challenging. The clinician must look at the camera rather than at the screen image of the client in order to make eye contact. Another challenge is that telepractice interventions tend to occur in a static location because of equipment

## ASHA's Involvement in Telepractice

and connectivity requirements. This makes it difficult to change the environment during a treatment session. Therefore, community outings or route-finding activities within a building cannot take place in a telepractice session.

Since the late 1990s, ASHA has examined the feasibility and success of applications of telemedicine technology to the delivery of speech-language pathology services. In 1998, ASHA's *Telehealth Issues Brief* described activities that had taken place to date in the area of telepractice (ASHA, 1998). Subsequently, one of the goals of ASHA's 2001–2003 Focused Initiative on Technology was to increase members' knowledge and access to ASHA products, information, and activities related to the use of telepractice in the delivery of clinical services in audiology and speech-language pathology. A staff team developed the 2001 *Telepractices and ASHA: Report of the Telepractices Team* that presented an updated overview of telepractice and future activities and needs (ASHA, 2001b).

In 2002, ASHA fielded a survey of 1,667 ASHA members to determine their awareness and experience with respect to telepractice (ASHA, 2002). Overall, 11% of the respondents (12% of audiologists and 9% of SLPs) indicated that they had provided services via telepractice (the definition of telepractice at that time was broad enough to include services that were conducted exclusively by telephone). Survey results indicated that a smaller percentage reported using Web-based or videoconferencing technology to provide telepractice. For SLPs, the most common use of telepractice was for professional consultation (42%), followed by direct patient care (38%), education (15%), and supervision (6%). The most frequently used patient care services were follow-up (76%), counseling (66%), treatment (37%), and equipment check (16%).

Between 2001 and 2003, ASHA collaborated with the National Rehabilitation Hospital's Rehabilitation Engineering Research Center on telerehabilitation to develop professional education presentations that were provided to ASHA members as workshop or convention sessions and as a telephone seminar, and in other multidisciplinary forums.

In 2003, ASHA awarded \$4,000 grants to three telepractice programs to develop materials that would inform members about their telepractice activities. Nineteen programs submitted grant proposals, encompassing audiology and speech-language pathology telepractice services provided from university, health care, and school settings. The diversity of proposals reflected the range of practice models currently in use by speech-language pathologists and audiologists.

## Early Applications of Telemedicine

Telemedicine applications have been reported since 1910 (Stanberry, 2000). Medical and related disciplines utilizing this service delivery model include but are not limited to: radiology, dermatology, oncology, cardiology, surgery, psychiatry, psychology, otolaryngology, ophthalmology, pulmonology, and rehabilitation. Telemedicine has typically been hospital-based, with health care providers delivering services to remote locations such as satellite clinics, community centers, prisons, Native American reservations, and to individuals at home (Bashshur, Reardon, & Shannon, 2000; Stanberry, 2000). Medical services have also been delivered internationally utilizing telemedicine technology.

## Early SLP Applications of Telepractice

The first documented use of distance programs in speech-language pathology was through a grant program in the mid-1970s at the Birmingham VA Hospital to explore “tele-communicology” as a potential solution to serving patients in remote locations (Vaughn, 1976). Clinicians provided services via telephone with an adjunct teaching machine that used filmstrips and supplementary materials such as workbooks and audiotapes for additional practice.

In 1987, the Mayo Clinic began offering SLP assessments as part of its telehealth services. A retrospective analysis of 150 consultations found that only six telepractice assessments lacked sufficient information (e.g., ability to touch or manipulate or see certain oral structures) to produce an accurate diagnosis, and required a face-to-face assessment (Duffy, Werven, & Aronson, 1997). In an additional portion of their study, eight patients were assessed via satellite, and results were comparable to those of a clinician evaluating the same information in a face-to-face condition.

In 1987, Wertz and colleagues reported that a communication diagnosis based on appraisal by closed circuit television or computer-controlled video laserdisc was essentially the same as in a face-to-face assessment situation (Wertz et al., 1987, 1992). Their results were derived from 36 patients, who were evaluated using standardized assessments including the Porch Index of Communicative Ability and the Western Aphasia Battery.

## Telepractice Delivery Models and Current Trends

The range of possible models does not limit any setting from being a potential location for the delivery of services via telepractice, including hospitals, satellite clinics, other residential and non-residential health care facilities, schools, and the client's home. Possible connections may include:

- Hospital to hospital
- Hospital to health care facility or clinician's office
- Health care facility to client's home
- Health care facility to school
- School to client's home
- Clinician's office to client's home

Three distinct telepractice models are generally recognized, as reported by AHRQ (2001). These models include store-and-forward (asynchronous), clinician interactive (synchronous), and self-monitoring/testing.

**Store-and-forward model (asynchronous).** This form of telepractice is the electronic transmission of clinical data from one location to another. This model does not require the client and clinician to be available at the same time. Common modes for data transmission include the Internet (via e-mail attachments or in other file formats), a telephone modem, and, in some cases, a fax machine. Store-and-forward is the most common form of telemedicine and is used almost exclusively by certain medical professionals, such as radiologists and dermatologists. Examples of store-and-forward applications in speech-language pathology include transmission of video clips or sound files.

## Current Applications and Research

**Clinician interactive (synchronous).** Synchronous communication normally is conducted in “real-time” for diagnosis and treatment through interactive audio and/or video, which traditionally required face-to-face encounters between the client and clinician. Examples of synchronous service include real-time direction and interpretation of videofluoroscopic studies, and assessment and treatment conducted via videoconferencing.

**Self-monitoring/testing model.** In this model, the client provides data to the clinician without any on-site facilitator. Data is usually collected in a client's home or residential care facility. This model is primarily used for clients with chronic illnesses who require close monitoring of vital signs such as the measurement of blood sugar levels or cardiac function. However, this does not preclude the development of future applications in speech-language pathology.

In a study conducted by National Rehabilitation Hospital staff, 40 subjects with a recent onset of neurogenic impairment completed a standardized story-retelling task in face-to-face and remote videoconference-based settings (Georgeadis, Brennan, Barker, & Baron, in press). Across all subjects, no significant difference in performance between settings was demonstrated. This finding supports prior research in the field, which has shown that SLP evaluations performed via telepractice are equivalent to those conducted in face-to-face sessions.

In a study conducted at Tripler Army Medical Center (Mashima et al., 2003), treatment outcomes were evaluated for a vocal rehabilitation protocol delivered via a telepractice model and conventional face-to-face model. There were no differences in perceptual, physical, acoustic, and client satisfaction outcome measures between the groups. Clients in both groups showed positive changes on all outcome measures after completing the rehabilitation protocol.

The evaluation of swallowing disorders has been successfully demonstrated by remote direction and interpretation of videofluoroscopic swallow studies, also known as modified barium swallow (MBS) assessments (Perlman & Witthawaskul, 2002). Such instrumental assessments are often necessary to develop a treatment plan. In fact, many Medicare intermediaries require an instrumental assessment before initiating dysphagia treatment. At the time of writing this technical report, the remote MBS has not yet been adapted for commercial use; however, at the University of Illinois, a custom interface enables the SLP at a distant location to view the videofluoroscopic image in real time while directing the study by talking to the radiologist or radiation technician in the hospital radiology suite. The study is then saved and viewed for detailed analysis or comparison with other studies.

## Outcomes in Schools

ASHA's 2002 telepractice survey indicated that the majority of SLPs using telepractice do so in a school setting. Clark and Scheiderman-Miller, (personal communication, 1999) described a successful speech-language pathology telepractice program in rural schools. They studied remote service delivery to schoolchildren and found relatively high satisfaction on the parts of teachers,

## Issues in Telepractice

clinicians, and parents. Pre- and post-treatment scores on a standardized rating scale indicated modest improvement due to remote service delivery as assessed by teachers, clinicians, and parents.

Given the relatively recent development of telepractice in speech-language pathology, there are a number of issues that should be considered prior to delivering services at a distance. Among these are personnel, equipment, ethics, professional licensing, liability and malpractice, privacy and confidentiality, clinical standards, candidacy criteria, client and provider satisfaction, reimbursement, and research needs.

### Personnel

Although only certified and / or licensed speech-language pathologists can provide professional SLP services via telepractice, appropriately trained individuals (e.g., health professionals, paraprofessionals, or trained family members/caregivers) may be present at the remote site to assist the client. It is the responsibility of the professional to direct the session and ensure that facilitators (e.g., support personnel and family members/caregivers) are adequately trained to assist in the telepractice session. The type of professional required at the remote site may vary depending on the type of service being provided.

For example, an SLP may perform an augmentative/alternative communication evaluation with another professional, such as an occupational therapist, at the site with the client. In school settings, a teacher or teacher's aide may be trained to assist the student with the telepractice encounter. In home settings, a client or family member may be trained to turn on the equipment and make the remote connection so that no additional assistance is needed.

### Equipment

Equipment specifications will vary depending upon the telepractice application and the desired outcomes of the intervention. Image and sound quality should be of sufficient quality for the clinical application. Examples of telepractice equipment which are readily available in the public domain include videophones, teleconferencing software/equipment, closed circuit TV, computer with Web cam, and image scanners. Transmission mediums include "plain old telephone system" (POTS), ISDN (Integrated Services Digital Network), satellite, cable (broadband internet connection), and DSL (Digital Subscriber Line). Conventional telephone connections provide the narrowest bandwidth, in contrast to high speed ISDN technology (T1–T4 lines) which offers comparatively large bandwidths for data transmission. Broader bandwidth permits greater speed of transmission, resulting in sharper, faster, and larger video images. However, broader bandwidth is associated with higher cost and reduced availability in some areas. Network availability and reliability are also important factors, as are equipment maintenance, training, and upgrades.

### Ethics

ASHA's Code of Ethics (ASHA, 2003) applies to all certified SLPs. Certified individuals engaged in clinical practice, including telepractice, are bound to honor their responsibility to hold paramount the welfare of persons they serve professionally and to provide all services competently (Denton, 2003). According

## Professional Licensing

to the Principle of Ethics I, Rule J, clinicians may practice by telecommunication where not prohibited by law. Among other ethical responsibilities of clinicians are expectations that they will:

- Obey laws and regulations of relevant jurisdictions governing professional licensing.
- Be educated and trained in the models of telepractice delivery.
- Inform clients how services via telepractice differ from services delivered face-to-face and disclose potential risks and limitations as well as benefits.
- Evaluate the effectiveness of services rendered via telepractice to ensure that methods, procedures, and techniques are consistent with best available evidence and adhere to standards of best practices.
- Create a safe environment within which to provide services.
- Use transmission and recordkeeping methodologies that protect privacy and ensure confidentiality and security. Transmission and storage of electronic health information must also be consistent with federal and state regulations.

Each state has the right to create and enforce its own licensure laws for the protection of consumers of professional services. Due to the recent advances in telepractice, the National Council of State Boards of Examiners in Speech-Language Pathology and Audiology has urged state licensing boards to develop statutory language relative to telepractice. The National Council further states that clinicians should be licensed in the state in which the consumer is receiving the service. Prior to initiating telepractice, clinicians should check with regulating bodies such as state licensure boards.

In 2003, 17 states adopted an Interstate Compact for Licensed Nursing, which allows nurses licensed in their home state to practice in any other party state (i.e., a state that has also adopted the compact) (ACNM, 2003). Each party state is able to place restrictions or additional requirements on what they consider advanced practice registered nursing. This compact could serve as a model for other professions.

## Liability and Malpractice

Clinicians are held to the same standard of practice in providing services via telepractice as in conventional face-to-face delivery methods. Although traditional liability theories apply to telepractice, it is likely that an emerging body of statutory and common law will further affect the delivery of services by telepractice in the future. Much like professional licensing, malpractice insurance requires a provider to be licensed in each state to which they deliver services.

Adequate facilitator (e.g., support personnel and family members/caregivers) training is necessary to ensure the quality of service delivery. Documentation of this training is encouraged.

To manage risk, clinicians are advised to obtain documentation of informed consent from the client. This may include a description of the equipment and services to be delivered, how services via telepractice may differ from services delivered face-to-face, and potential confidentiality issues. Documentation may also include the type of equipment used, the identity of every person present, the location of the client and the clinician, and the type and rate of transmission.

## Privacy and Confidentiality

Clinicians have an ethical and legal responsibility to protect and preserve the privacy and confidentiality of their clients. This may include using the camera to scan the clinician's environment to assure privacy and providing clients with an opportunity to decide who should be present at their location when receiving services. Federal regulations (e.g., the Health Insurance Portability and Accountability Act (HIPAA)) require that providers maintain the privacy and confidentiality of protected health information (PHI). There are various electronic means for achieving confidentiality and privacy consistent with HIPAA regulations, such as data encryption, secure certificates, and virtual private networks. While these are adequate strategies at present, future regulations as well as advances in technology may require higher levels of security.

## Clinical Standards

Because telepractice is emerging as a widely used method of service delivery due to advances in technology, health care professions are developing clinical standards to ensure quality of services. The American College of Radiology, the American Psychological Association, the American Nurses Association, the American Association of Respiratory Care, and the American Telemedicine Association are among the first professional associations to develop guidelines or statements about telepractice/telehealth service delivery. These documents essentially affirm that telepractice services must meet all standards required for face-to-face services. The use of telepractice as a delivery model does not negate any ethical responsibility on the part of the provider, who is expected to be competent both in the area of service and with the technology used in a telepractice encounter.

Clinical competencies may include:

Knowledge of:

- The types and use of technology for delivering telepractice services, and awareness of the client's resources and support systems.
- How to address cultural/linguistic differences in client populations using telepractice service delivery (e.g., nonverbal communication, pragmatics)

Ability to:

- Assess the appropriateness of clients as candidates for telepractice.
- Match the appropriate technology to the clinical needs of the client.
- Adapt diagnostic procedures and treatment techniques to the telepractice encounter and recognize how such adaptations may affect the validity of standardized tests.
- Assure the reliability and validity of diagnoses obtained via telepractice.
- Assure the effectiveness of the telepractice intervention (outcome measures, client satisfaction).
- Document services appropriately.

## Candidacy Criteria

As in any clinical practice, candidacy for receiving services via telepractice should be assessed prior to initiation of services.

The following factors, while not exclusionary, may impact the success of the telepractice assessment/intervention:

- Attention (e.g., ability to sit in front of a monitor and attend to the clinician)

- Auditory comprehension (e.g., ability to follow directions to operate equipment)
- Literacy
- Cognitive ability
- Hearing ability
- Visual ability (e.g., ability to see material on a computer monitor)
- Speech intelligibility
- Behavior (e.g., ability to sit in front of a camera and minimize extraneous movements to avoid compromising the image resolution)
- Physical endurance (e.g., sitting tolerance)
- Manual dexterity (e.g., ability to operate a keyboard if needed)
- Comfort level with technology
- Willingness of client and family/caregiver (as appropriate) to participate in telepractice
- Cultural/linguistic considerations (e.g., availability of interpreter)
- Access to and availability of resources (e.g., telecommunications network, facilitator)

## Client Satisfaction

As with other clinical services, it is important to measure client satisfaction. The clinical literature from SLP as well as other professions (e.g., psychology, psychiatry, physical therapy, etc.) report positive outcomes in client satisfaction (Kully, 2000; Duffy et al., 1997; Hilty, Luo, Marache, Marcelo, & Nesbitt, 2002; Leyden & Phillips, 1999; Mashima et al., 2003). However, satisfaction may be affected by factors including client selection, service delivery methodology, transmission quality, and clinician and facilitator competence.

In a story-retelling task that was conducted in both face-to-face and telepractice sessions, 85% of subjects reported a high level of acceptance of the videoconferencing session (Georgeadis, Brennan, Barker, & Baron, in press). Subject variables (age, education, technology experience, and gender) did not influence their performance between the telepractice and face-to-face settings (Brennan, Georgeadis, Baron, & Barker, in press).

In a voice rehabilitation protocol using the telepractice model of service delivery, 16 out of 16 subjects reported positive experiences (Mashima et al., 2003).

## Clinician Satisfaction

Another important consideration is clinician satisfaction. Clinician and administrative support and acceptance of telepractice are essential to the development of successful programs. Less information is available regarding provider satisfaction and telepractice. Generally, providers have found telepractice acceptable for service provision. However, research suggests that providers are more likely to find telepractice effective if they serve rural centers and have prior experience with telepractice technology (Hilty, Luo, Marache, Marcelo, & Nesbitt, 2002; Karp et al. 2000; Hilty, Marks, Urness, Yellowlees, & Nesbitt, 2004; Marcini et al., 2004; Whited, 2001).

## Reimbursement

Without a reasonable expectation of payment for a service, it will be difficult for providers or institutions to plan and implement a telepractice program. ASHA's 2002 member survey on telepractice indicated that 71% of telepractice services were not reimbursed. Historically, telepractice services have been funded by

grants, rather than traditional sources such as Medicare, Medicaid, or third-party insurance. Federal telehealth legislation has become more favorable for payment of telepractice services, but reimbursement is contingent on specific telepractice procedure codes being developed. Some states reimburse for SLP telepractice through Medicaid. Third-party insurance typically follows Medicare's lead on reimbursement for new procedures (Nickelson, 1998). Although private insurance carriers reimburse some medical practitioners, SLPs are not yet widely covered for providing services via telepractice. However, precedents are being set for coverage by private insurers such as Blue Cross/Blue Shield of North Dakota for speech-language pathology services (ASHA, 2003, November 18). Ultimately, services that would normally be reimbursed in a face-to-face encounter should be reimbursed in a telepractice encounter. The lack of reimbursement could potentially be a barrier to the expansion of telepractice.

## Research Needs

Evidence from clinical research is needed to:

- Determine appropriate applications of telepractice in SLP.
- Develop and validate telepractice clinical protocols.
- Develop appropriate reliability and validation techniques (e.g., cross checks) for telepractice procedures to ensure quality of service.
- Investigate the efficacy and effectiveness of clinical outcomes (e.g., National Outcomes Measurement System (NOMS)), client and clinician satisfaction, quality of care, and cost-effectiveness of telepractice applications.
- Set minimal acceptable technical specifications (compression, depth, resolution, transmission quality) to support clinical procedures and the application of telepractice service delivery models.

(AHRQ, 2001; Hill & Theodoros, 2002)

## Future Directions

The use of technology to deliver services remotely will continue to expand to meet currently unmet needs. However, the speed of expansion in speech-language pathology will depend on three critical factors: 1) the acceptance of state, federal, and private insurance programs to pay for eligible services delivered by telepractice; 2) the continued development of research on telepractice technology and applications; and 3) statewide acceptance of telepractice through licensure. Interstate compacts, such as the one initiated by the Interstate College of Nursing, or reciprocity agreements, represent one future direction for addressing the new challenges created by telepractice for all professions.

As telepractice applications continue to grow and expand, additional policies and guidelines will emerge regarding professional education to provide the services, particularly in pre-service training, and its appropriate use for clinical supervision.

## Summary

Telepractice is the judicious application of technology to services long provided by speech-language pathologists. Research and reports to date confirm its significant advantages to overcome barriers of access to services caused by distance, unavailability of specialists and/or sub specialists, and impaired mobility.

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