

Best Practices and Considerations for Effective Service Provision via Remote Technology

Denice Rios

Western Michigan University

Ellie Kazemi

California State University, Northridge

Stephanie M. Peterson

Western Michigan University

Teleconsultation is a method of providing services using remote technology. In rural areas it can be the solution to close the gap in service provision. In this paper, we detailed the technical factors that individuals who are attempting to engage in teleconsultation should consider. In addition, we provided some recommendations based on current trends and best practices and discussed implications for future use of such technologies.

Keywords: teleconsultation, telehealth, supervision, remote, training

Services based on applied behavior analysis (ABA), provided by board-certified behavior analysts (BCBAs), are in high demand because of the well-documented effectiveness of behavior-analytic interventions in mitigating skill deficits and addressing problem behaviors of individuals with autism spectrum disorders (Eldevik et al., 2009; Mueller & Nkosi, 2007; National Autism Center, 2015). Presently, there is a national shortage of BCBAs, which hinders access to behavioral treatments provided by qualified individuals for children with learning and behavioral challenges (Wacker et al., 2013a). The shortage of most credentialed professionals in human-care services is exacerbated in geographically isolated areas (World Health Organization, 2011), where distance introduces various challenges in providing appropriate

clinical services to families in need (see, e.g., Barretto, Wacker, Harding, Lee, & Berg, 2006; Boisvert, Lang, Andrianopoulos, & Boscardin, 2010; Frieder, Peterson, Woodward, Crane, & Garner, 2009; Machalicek et al., 2009; Wacker et al., 2013a, 2013b). Barriers such as travel time and costs for travel arise when providing services in remote locations. These barriers also extend to the supervision and training of staff. Thus, long distance between providers and consumers of their services is a real challenge that affects service cost, efficiency, and quality.

One cost-effective and practical solution for the current barriers in service provision is teleconsultation, which involves the application of communication technologies to consult and deliver services in real-time across long distances (Boisvert et al., 2010). Teleconsultation consists of real-time sharing of video and audio information and has been shown to be an effective and cost-efficient service-delivery method (Alnemary, Wallace, Symon, & Barry, 2015; Barretto et al., 2006; Frieder et al., 2009; Gibson, Pennington, Stenhoff, & Hopper, 2010; Machalicek et al., 2009; Machalicek et al., 2010; Wacker et al., 2013a, 2013b). Other professions have used telehealth for human-service delivery for many years (Boisvert, Lang, Andrianopoulos, & Boscardin, 2010). For example, the United States military has used telehealth to deliver services to deployed soldiers (Boisvert et al., 2010). In addition, physicians have used

Editor's Note. Duane A. Lundervold served as the action editor for this article.—DAL

Denice Rios, Department of Psychology, Western Michigan University; Ellie Kazemi, Department of Psychology, California State University, Northridge; Stephanie M. Peterson, Department of Psychology, Western Michigan University.

Correspondence concerning this article should be addressed to Denice Rios, Department of Psychology, Western Michigan University, 1903 West Michigan Avenue, Kalamazoo, MI 49008. E-mail: denice.rios@wmich.edu

telehealth to reach patients who live too far to drive back and forth for follow-up appointments. Recently, teleconsultation has been used successfully in behavior analysis to deliver various assessment and intervention services such as functional analyses (Frieder et al., 2009; Machalicek et al., 2009, 2010; Wacker et al., 2013a) and functional communication training (Lee et al., 2015; Suess et al., 2014; Wacker et al., 2013b). Therefore, teleconsultation can potentially facilitate the provision of services by reducing drive time and cost of travel, enabling service providers to focus primarily on service delivery.

Although its capacities look promising, setting up a teleconsultation service has several challenges that can make the task feel daunting to those involved. First, service providers must choose the appropriate technology to use for delivering their services based on hardware (e.g., video cameras, iPads), software (e.g., videoconferencing software programs), costs, user friendliness, and availability. Next, guidelines for using such technology to deliver services must be developed to ensure effective service delivery and supervision of staff. For example, service providers must develop methods for data collection, delivery of various training strategies (e.g., modeling, feedback), and a system to transfer data. In addition, service providers must take into account many security matters, such as encryption, virus safety, and security compliance that accompany the transfer of data. Legislation on secure technologies is evolving rapidly, and service providers must ensure that their decisions are in compliance with the emerging laws. For example, in 2013, an Oklahoma psychiatrist was suspended for using Skype to deliver mental health services to his patients (Knittle, 2013). The medical board documents from this investigation showed that Skype was not an approved telemedicine communication system and, as such, the psychiatrist was putting his patient's information at risk. In the same year, Microsoft, who has ownership over Skype, was sued for patent violations involving encryption and security issues with their web-based communication systems (Whitney, 2013). Most recently, a doctor in Tennessee lost his medical license after investigators discovered he was using teleconsultation services to prescribe medication to patients he had never physically examined (Belz, 2015). These

situations highlight the importance of service providers learning about, as well as following, the legal and ethical codes of practice when engaging in teleconsultation. The provision of services also involves administrative components, such as the supervision and training of staff. According to the Behavior Analyst Certification Board (BACB; 2016) *Professional and Ethical Compliance Code*, supervisors are responsible for ensuring that their staff abide by legal and ethical guidelines when delivering services (BACB Compliance Code 5.03). Similarly, when in supervisory roles, licensed psychologists are held accountable for any and all actions of their supervisees (American Psychological Association [APA], 2010, Standard 7). Therefore, service providers must ensure that their staff and supervisees abide by all legal and ethical codes when carrying out their teleconsultation services.

The purpose of this paper is to provide readers with information about current challenges in adopting teleconsultation services and outline recommendations based on existing models to facilitate the process. Although we provide citations of relevant research on this topic, this paper is not meant to be a systematic review of the literature on teleconsultation practice. Also, as a caveat, although we name some brands of technology in our discussion, we do not recommend any one manufacturer over another, specifically because capabilities and functionalities offered by each are continually changing.

Technology

Teleconsultation involves the use of technology, not only for the service providers, but also for staff and the families receiving the services. The technology to be used is one of the first things individuals engaging in teleconsultation should consider. Service providers should examine technological needs both from the perspective of the staff and that of the individual families to ensure that both parties' needs are addressed. Hardware (i.e., equipment) and software (e.g., videoconferencing programs) are two technological needs that service providers will need to consider when starting their teleconsultation services.

Hardware

Hardware is an essential component for anyone engaging in teleconsultation. The hardware in which service providers must invest when beginning their teleconsultation services includes electronic equipment such as computers and cameras. Cost is an important consideration when examining hardware options. In the early years of teleconsultation, the cost of equipment was so high that it was difficult for users to demonstrate a level of effectiveness which justified its cost. Today, such expensive equipment is still available and used among various university settings. For example, the state of Iowa built its own fiber-optic network called the Iowa Communications Network (Barretto et al., 2006), which was used by many service providers, including the University of Iowa, and consisted of 2,800 miles of fiber-optic cables. In addition, all of its users were equipped with remotely controlled cameras and high-speed Internet connections. Still, this highly advanced and secure hardware was expensive, with costs exceeding thousands of dollars a month. Such a high-level system may not be possible for most practitioners. Some technology options are very costly, but equipment such as laptop computers, tablets, cameras, and various smartphones are rapidly becoming an affordable option for use in teleconsultation services.

Most service providers and health care professionals have access to computers, laptops, and/or tablets (e.g., Apple iPad, Samsung Galaxy Tab, Microsoft Surface) with an Internet connection. Thus, the possibilities exist for readily available hardware at relatively little cost to service providers (Wood, Miller, & Hargrove, 2005). Computers, such as personal laptops, are widely available, relatively inexpensive, and can prove to be a highly effective choice of equipment for teleconsultation (see, e.g., Gibson et al., 2010 and Machalicek et al., 2009). In some institutions, this type of equipment is already provided by employers, which can make the added costs of such tools near zero. Similarly, today, most families and individuals own at least one of the aforementioned pieces of equipment and have some form of Internet service, which makes it easier to bring teleconsultation to family homes. Finally, laptops and cameras have the additional advantage of being portable, which may allow service pro-

viders more flexibility in the delivery of their supervision and training because they are not bound to a specific location (Boisvert et al., 2010). However, with this portability comes the disadvantage of potential damage or theft. Granted, this issue could be remedied with the purchase of insurance and/or low-cost equipment that would not be too expensive to replace.

Inexpensive equipment is not without problems. One of the most commonly reported problems with the use of inexpensive equipment in teleconsultation models is the quality of the video observations (Alnemary et al., 2015; Boisvert et al., 2010; Gibson et al., 2010; Machalicek et al., 2009). With less sophisticated equipment, video quality may be poor with pixelated video feed, frequent pauses, and a limited range of visibility. For example, most cameras are in semifixed locations (e.g., attached to a laptop or computer) and have limited pan, tilt, and zoom capabilities. This can limit visibility when staff and/or clients move in and out of the camera's range and focal length (Gibson et al., 2010). However, there are a few creative solutions for low-cost, high-quality video feeds. For example, Frieder et al. (2009) used Ganz ZC D-6000 cameras (Cary, NC), which are primarily used as security cameras. The cameras were relatively inexpensive, had high-resolution capabilities, and could also pan, tilt, and zoom via controls the observer manipulated. Thus, if a child and/or staff member moved out of the view of the camera, the observer could remotely adjust the camera angle. The price of this equipment ranged from \$300 to \$1,000 per camera. Machalicek et al. (2009) used an even less expensive camera called the Apple iSight, which ranges in price from \$20 to \$180. Although the Apple iSight cameras do not have zoom capabilities, these cameras can rotate and tilt, which may give service providers a better view than a typical stationary web camera. Practitioners will need to balance cost, portability, and quality of video feed when making decisions about the hardware they will purchase. We recommend that service providers purchase the highest quality equipment their budget allows.

Another problem that can result from using inexpensive equipment such as laptops or tablets is the potential for defects. Most of the time, technical support can be difficult to access, insufficient, and/or unavailable. Families and ser-

vice providers may be left with little to no assistance when equipment breaks down, Internet connections fail, or other such “glitches” inevitably occur. Although higher quality equipment can come with additional technological support, portable laptops and cameras usually do not come with specialized teams that can help in the case of equipment malfunctions, such as frequent dropped calls, low-quality video, and microphone malfunction. When purchasing equipment, practitioners may want to inquire as to the level of technical assistance available for the equipment and the related costs. In addition, service providers are advised to consider developing procedures for when equipment malfunctions occur (Gibson et al., 2010). In a special report, Nerlich et al. (2002) emphasized the importance of developing troubleshooting procedures and ongoing education and training for all potential users. The cost of ongoing education and training can vary depending on the technology used. Technological support can be provided by training individuals on the appropriate procedures and/or creating policies and protocols for when such cases arise (Nerlich et al., 2002). For example, practitioners can develop documents that would outline troubleshooting procedures (e.g., who to contact, what to do when issues occur, etc.) and appropriate ways to use hardware and software (e.g., task analyses).

Software

Another important decision a service provider must make is choosing which software to use. The most commonly used online meeting software, such as Skype, FaceTime, and Google Hangouts, are free and easily accessible (Boisvert et al., 2010). However, these videoconferencing systems pose some ethical and legal challenges for practitioners. Specifically, these programs are not compliant with the Health Insurance Portability and Accountability Act of 1996 (HIPAA; see <https://www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/>), which applies to all electronic communication during the provision of behavior-analytic services. Thus, Skype, FaceTime, and Google Hangouts should be avoided as software choices for teleconsultation. There are, however, several HIPAA-compliant options that exist for service providers. The most sophisticated example of

HIPAA-compliant software is the Iowa Communications Network (ICN), used by Barretto et al. (2006) and described earlier. The fiber-optic network is connected to over 700 classrooms through secure and private cables that were only accessible to the University of Iowa and the designated classrooms for service. This specific feature ensured the privacy and protection of client information. However, as previously noted, this system was extremely expensive and required a great deal of infrastructure. Other programs, such as VSee (Sunnyvale, CA) and Breakthrough (Symantec, Sunnyvale, CA) currently cost less and are easily accessible. VSee is relatively simple to use and is available as a free subscription for the basic platform. Through VSee, service providers can video chat live with clients and staff and securely share and transfer files. The basic platform ensures encryption of videoconferencing sessions by having a secure connection that connects only the two users involved in the meeting. Furthermore, it allows the two users to securely distribute and share files.

Despite the secure connection, the basic platform of VSee is not HIPAA-compliant because it lacks a Business Associates Agreement (BAA). This agreement is a contract between the service provider and a third party ensuring that both entities meet HIPAA requirements for security. According to HIPAA law, a “business associate” is any third-party entity that is part of service delivery and/or has access to private health information (United States Department of Health and Human Services, 2002). Therefore, any organization that provides the videoconferencing software for teleconsultation practice is considered a business associate of the service provider (Cavalari, Gillis, Kruser, & Romanczyk, 2015). Accordingly, service providers are required to obtain a written contract with the organization providing the online meeting software. Through the contract, service providers ensure that the organization will protect the health information of their clients and staff, establish safeguards to protect against unauthorized use of health information, and follow all other established HIPAA regulations. Programs such as Skype, iChat, and Google Hangouts do not make this option available for service providers and, therefore, are not HIPAA-compliant. Their use in the practice of teleconsultation, where client data are transmit-

ted, should be avoided. For a comprehensive list of what is considered to be private health information, see Cavalari et al. (2015).

In contrast, a more advanced platform of VSee that does meet the requirements of obtaining a BAA is available for purchase. The price of this more advanced platform is approximately \$300 a month. Another videoconferencing network that is HIPAA-compliant and currently offers a secure online platform to service providers is Breakthrough. However, unlike VSee, who as a third party allows service providers to remain independent contractors, Breakthrough requires registration onto an existing provider network. Although becoming part of a large provider network may come with some limitations (e.g., fees, limited times to conduct sessions, and limited population of potential clients), it also comes with some advantages. For example, as part of the network services, Breakthrough offers service providers customer and technical support when needed, which can be a huge help when coming across connectivity issues. The price for providing services under their platform is currently around \$6 per session. Although we have not seen this medium used for teleconsultation practices in behavior analysis, Breakthrough appears to be an acceptable option to consider. When choosing software service providers, consultants should consider the options described here. Table 1 summarizes our technological recommendations.

Security

Some of the software concerns described above involve issues of Internet security, which should be at the forefront of the practitioner's

concern when considering teleconsultation. The BACB and the APA currently do not have regulations specific to the use of teleconsultation in the provision of services. However, the general parameters of the BACB (2016) and the APA (2010) apply as much to the use of remote technology as they do to live service provision. Specific codes to consider are related to the rights and prerogatives of clients (i.e., BACB Compliance Code 2.05; APA General Principle A: Beneficence and No maleficence), maintaining confidentiality (i.e., BACB Compliance Code 2.06; APA Standard 4: Privacy and Confidentiality), and media presentations and media-based services (i.e., BACB Compliance Code 8.05; APA Standard 4: Privacy and Confidentiality).

Confidentiality in the Storage and Transmission of Data

The goal of HIPAA is to ensure the protection and security of individual's health-insurance information. Under HIPAA regulations, service providers are responsible for establishing safeguards that ensure the protection of electronically transmitted client information (Boisvert et al., 2010). Given the considerable differences in the mode of service delivery between live consultation and teleconsultation, the storage, processing, and transmission of data, and other relevant materials should be carefully considered when conducting teleconsultation services (Nerlich et al., 2002).

When service providers engage in teleconsultation, they must share information electronically with the client and/or the client's family. Materials that may need to be exchanged might include the functional behavior assessment

Table 1
Summary of Technology Recommendations

Technology measures
1. Practitioners should try to balance cost, portability, and quality of video feed when making decisions about the hardware they will purchase.
2. Purchase the highest quality, most user-friendly equipment that budget allows.
3. Try to select equipment that comes with good technical support from the company, whenever possible.
4. Develop specific protocols for users at both ends for troubleshooting when technology glitches occur, including alternative telecommunication devices when necessary.
5. Provide regular, structured training on equipment usage to all parties involved in the teleconsultation process.
6. Ensure that your software is HIPAA compliant and provides for a Business Associate's Agreement.

Note. HIPAA = Health Insurance Portability and Accountability Act of 1996.

forms and rating scales, direct observation data, and functional analysis data. Electronic sharing of information presents new challenges for consultants. Practitioners must ensure that precautions are taken to make it difficult for information to be manipulated and/or illegally accessed, especially when information is shared electronically. Service providers will need to develop policies, procedures, and protocols for data transmission. For example, Barretto et al. (2006) had their participants send the relevant materials directly to the supervisors at the university using the United States mail system as opposed to using email or other electronic forms of data submission. However, email can be used to exchange some information. For example, Gibson et al. (2010) used email to exchange materials between their supervisors and teachers. If email systems are used, it is suggested that documents are encrypted to protect confidentiality if intercepted or sent to an unintended recipient. Encryption is the process of encoding materials so that only specific individuals have access to it by way of a unique password. This is easily accomplished in Microsoft Word, for example, by selecting "Protect" from the Tools menu and entering a required password. The document can then be emailed to the recipient, who will need to enter the password to open the document. The password can be given to the recipient either in an email separate from the email containing the document, over the telephone, or by using other standard security protocols already established. By encrypting materials that are sent electronically, service providers have added protection if the electronic information is somehow jeopardized (e.g., email is compromised or equipment is stolen).

The storage of data (e.g., assessment forms, behavior data, session videos) is also some-

thing that should be carefully planned when engaging in teleconsultation. Data must be stored in a way that protects confidentiality, keeping it safe from unintended recipients. Some service providers store information from teleconsultation services on internal or external hard drives, whereas others store information in a "cloud." Internal and external hard drives store data locally; cloud storage systems store data online. Whereas internal and external hard drives are owned and managed locally by the practitioner, cloud storage is typically owned and managed by a hosting company. Whether data are stored locally or in a cloud, it is important that all storage devices are encrypted to ensure that only authorized individuals can access the stored information. In the case of cloud storage, service providers must ensure that the hosting company meets HIPAA regulations before deciding to use it (i.e., a BAA is in place between the service provider and the hosting company). Cloud storage systems such as iCloud, Google Drive, and DropBox are examples of systems that are *not* HIPAA-compliant. However, Google Drive and DropBox will obtain BAAs for service providers who request one. In addition, if storing data on local devices, service providers should ensure that those devices are stored in locked cabinets that are only accessible to their teleconsultation team. Furthermore, practitioners should ensure that they meet requirements from both APA and the BACB on the duration of data storage. For example, the BACB (2016) requires behavior analysts to store any and all client data for at least 7 years (BACB Compliance Code 2.11b). See Table 2 for a comprehensive list of approved software for video conferencing and data storage.

Table 2
List of Video-Conferencing and Data-Storage Software

Software name	Current price	HIPAA-compliant	Encryption	Provider network
VSee	\$300/month	X	X	Independent
Google Hangout	Free			Independent
Breakthrough	\$6/session	X	X	Group
Google Drive	Free		X	Independent
Dropbox	Free		X	Independent
iCloud	Free		X	Independent
Skype	Free		X	Independent

Note. HIPAA = Health Insurance Portability and Accountability Act of 1996.

Networks

Earlier transmissions of teleconsultation services often involved integrated services digital networks (ISDN; Dudding, 2009). These networks consisted of transmission of voice and video data through telephone networks. A significant concern with these systems was that personal information could be easily intercepted by anyone who was able to detect the digital network. However, higher quality networks are now available to the practitioner (Dudding, 2009). One recent development that provides for increased network security is the availability of virtual private networks (VPNs). VPNs now make it possible for individuals to securely provide Internet services (Boisvert et al., 2010). A VPN is a network that utilizes existing systems of connection (e.g., Internet) to create a private connection between two networks (National Institute of Standards & Technology, 2005). VPNs increases security for sharing and transferring sensitive data across public networks by allowing service providers to control who can access the connection. A VPN is like a private line between only the two parties who are connected. Other users who could potentially eavesdrop or steal data as it is being transmitted are not permitted on the line. VPNs are usually easily accessed through various Internet service providers with minimal costs. Service providers using teleconsultation should consider using a VPN during consultation activities (Nerlich et al., 2002).

Many of the previously cited teleconsultation studies used VPNs along with additional password-protected systems. For example, Machalicek et al. (2009) used a VPN and installed an additional Wi-Fi protected network that was maintained and accessible to the agency where the supervisors were located. Gibson, Pennington, Stenhoff, and Hopper (2010) and Alnema et al. (2015) required their participants to use usernames and passwords to log on to the Internet connection as well. Service providers are encouraged to inquire with the appropriate Internet/technology specialist in their respective establishments to learn about how to add additional password protection and ensure that their systems meet all encryption criteria.

Another commonly reported obstacle in teleconsultation is network connectivity (Alnema et al., 2015; Machalicek et al., 2009). Depending on the quality, Internet connections can be regularly interrupted, causing frustration for staff and limited observation opportunities for service providers. This could make for poor quality supervision and or consultation outcomes. Although many establishments have access to high-speed Internet connection, teleconsultation often requires additional bandwidth requirements that cause issues with the quality of audio and video transmissions due to limited data capacity and the speed at which it can be transmitted (Boisvert et al., 2010). According to the American Telemedicine Association (ATA), a bandwidth of 500 Kbps and a 640 × 480 resolution at 30 frames ps are the minimum requirements for quality connectivity (ATA, 2014). Service providers will need to investigate the limitations of the Internet connections on both ends to determine potential quality issues that may arise in transmitting.

An organization's firewall settings can cause additional headaches for users by blocking outside access to its system. Firewall settings are network systems that filter information entering an organization's private network and are usually part of the Internet and computer-based operating systems. Hence, if a service provider were to establish web-based communication with an organization or any individual with Internet connectivity, he or she would have to ensure that his or her firewall settings were set to allow access to the system.

The best examples of high-quality connections and bandwidth allowance are those that use cable modems and/or individualized networks. An ideal example of this is the fiber-optic network (e.g., cable network) used by Barretto et al. (2006). Connection and video quality was not an issue for these authors because the only sites with whom they consulted had access to and could connect to the network, and fiber-optic cables were used, which allow for high-speed transmission of large amounts of data. However, as noted previously, this system was extremely expensive. For service providers who may not be able to establish an individualized network due to the high costs, several researchers and

practitioners recommend the use of high-speed and secure Internet to reduce the problems with limited bandwidth and security concerns (see Boisvert et al., 2010; Dudding & Justice, 2004; Machalicek et al., 2009). The cost of maintaining a high-quality Internet connection varies depending on the provider chosen by the service provider, but current costs range anywhere from \$30 to \$300 (Open Technology Institute, 2014). Table 3 summarizes our security recommendations.

Ethical Considerations

A service provider must generally take a number of ethical issues into consideration as part of his or her practice, and the use of remote technology introduces additional ethical considerations (Boisvert et al., 2010; Nerlich et al., 2002). Although we address some of these considerations here, they are limited specifically to technology. We refer the reader to Peterson, Wiskirchen, Rios, and Schenk (2015) for a broader discussion of ethical issues that may arise when engaging in teleconsultation.

One issue that service providers should consider is the scope of practice in the state in which they provide services. Specifically, when providing consultation in a state other than the one in which he or she lives, the service provider should verify whether he or she is allowed to practice in that specific location where the client resides (Nerlich et al., 2002). For example, if a behavior analyst lives in a state that does not require a license to practice, but the client lives in a state where

behavior analysts must be licensed, the behavior analyst may need to become licensed in the state in which the client and/or staff member lives to provide services. Teleconsultation allows practitioners to engage in practice across state and national boundaries (Alnemary et al., 2015). Thus, it is important for the practitioner to know and understand the laws, policies, and regulations of those other states and nations before engaging in behavior-analytic practice there.

Service providers must ensure that effective procedures are in place that will allow them to behave consistently with the BACB's (2016) as well as the APA's (2010) *Ethical Principles of Psychologists and Code of Conduct*. For example, as part of the BACB *Compliance Code*, behavior analysts are required to obtain consent from their clients before providing any type of service (Code 2.03), whether practicing live or virtually. However, service providers need to obtain additional consents for teleconsultation because it involves videotaping of sessions and remote transmission of video data.

Service providers have a responsibility to practice within their scope of competence (BACB Compliance Code 1.02; APA Standard 2.01), continue to improve and maintain their competence (BACB Compliance Code 1.03; APA Standard 2.03), and provide the most effective treatment (BACB Compliance Code 2.09; APA Standard 2.04). To ensure that they are meeting these standards, service providers should identify their technological capabilities and plan their service delivery ac-

Table 3
Summary of Security Recommendations

Security measures
1. Develop specific protocols for encrypting documents exchanged electronically between practitioners and between practitioners and families/clients.
2. Ensure that all hard drives (internal and external), as well as cloud-based storage is encrypted.
3. Laptops and external hard drives containing client data should be stored in locked cabinets in locked rooms.
4. If cloud-based storage is used, ensure that the hosting company is HIPAA-compliant and provides a BAA.
5. Use a VPN while engaged in teleconsultation services.
6. Ensure that wireless routers (if used) are used in encrypted mode.
7. Use the highest speed and highest quality Internet connections that finances allow.
8. Make sure firewall settings are set to allow external parties to access your network.

Note. HIPAA = Health Insurance Portability and Accountability Act of 1996; BAA = business associates agreement; VPN = virtual private network.

cordingly. For example, in identifying such information, service providers may find out that their current system does not allow for private audio feedback, which may have an impact on the effectiveness of their service delivery. As such, the service provider must arrange additional equipment for private communication.

Finally, service providers are responsible for ensuring that they are correctly billing the appropriate funding agencies when providing supervision, training, and clinical services. An additional variable is introduced when providing these services remotely. As such, different guidelines and billing codes are required when providing teleconsultation. Recently, the American Medical Association (American Medical Association, 2014) adopted a list of guidelines and billing codes that help ensure the appropriate coverage and payment of teleconsultation services. Consumers of clinical services also need to be informed of these new guidelines and billing codes and make sure that their funding agencies cover teleconsultation services. In Table 4, we provide a summary of recommendations to adhere to ethical guidelines set forth by the APA and the BACB.

Summary

As the need for behavior-analytic services continues to grow alongside developments in technology, the use of teleconsultation may become increasingly popular and common as a mode of service delivery. Teleconsultation offers many advantages, namely it may provide access to quality services that many not otherwise be available to some clients and families. An important first step for service

providers considering teleconsultation is identifying the appropriate equipment for the type of services that will be provided. Although it is important to be cost-effective, service providers should be careful not to jeopardize the quality of their equipment, as it may lead to poor service provision, ethical and legal problems, and higher long-term costs. Service providers should establish appropriate protection and support for their equipment from the onset, as well.

The service provider's highest priority should be to ensure that the software used for teleconsultation follows HIPAA requirements and the BACB compliance codes. Videoconferencing programs such as VSee, Breakthrough, and systems such as the ICN used in Iowa are all examples of software that are HIPAA-compliant. High-quality Internet connections and the use of VPNs will also contribute to highly secure and valuable services.

Even under ideal conditions, having the best equipment, software, and Internet connection, teleconsultation for providing behavior-analytic services comes with issues and challenges that should be considered so that services are provided within legal and ethical boundaries. In this paper, we summarized frequently encountered technical issues with teleconsultation and provided some suggestions for dealing with these issues based on previous research and practice.

Given the shortage of BCBAs and the rising demand for behavior-analytic services, the need for teleconsultation is clear. In addition, researchers, such as those cited here, have demonstrated that this can be a highly effective consultation strategy. If trends in teleconsultation are sustained, advances in technology will result in continually increas-

Table 4
Summary of Ethical Recommendations

Ethical measures
1. If your client lives in another state or country, and you are providing services via teleconsultation in their home state or country, be sure you are knowledgeable about and abide by the laws and regulations of the client's state or country in addition to your own.
2. Ensure you have obtained appropriate consents from clients and their families to video them, either for recording or remote transmission purposes.
3. Ensure you are practicing within our scope of practice and possess the appropriate technology skills to engage in teleconsultation effectively or have the means of technology support to assist you.
4. Ensure that you are informed of the appropriate billing codes for teleconsultation services in your state.

ing quality of service provision and make using remote technology a more viable method of addressing the shortage of certified professionals in rural settings. Some of these advances will surely resolve many of the issues described in this paper. However, these advances may also produce new concerns and issues for the behavior analyst. In an area, such as teleconsultation, in which technology rapidly changes with time, it is imperative that behavior analysts keep abreast of new technological developments and maintain competence in these technologies if they intend to engage in behavioral teleconsultation.

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Received March 27, 2016

Revision received July 30, 2016

Accepted November 16, 2016 ■