AOTA Position Paper

Telehealth in Occupational Therapy

This paper provides the current position of the American Occupational Therapy Association (AOTA) regarding the use of telehealth by occupational therapy practitioners.[1] This document describes the use of telehealth within occupational therapy practice areas, as discussed in the existing research. In addition, occupational therapy practitioner qualifications, ethics, and regulatory issues related to the use of telehealth as a service delivery model within occupational therapy are outlined. Occupational therapy practitioners are the intended audience for this document, although others involved in supervising, planning, delivering, regulating, and paying for occupational therapy services also may find it helpful.

Definitions

Telecommunication and information technologies have prompted the development of an emerging model of health care delivery called *telehealth,* which encompasses health care services, health information, and health education. AOTA defines *telehealth* as the application of evaluative, consultative, preventative, and therapeutic services delivered through *information and communication technology* (ICT; see Appendix A).

Telerehabilitation falls within the larger realm of telehealth and is the application of ICT specifically for the delivery of rehabilitation and habilitation services (Richmond et al., 2017). However, the term *telehealth* best represents the scope of occupational therapy services (Cason, 2012a) and is the prevailing term used in state and federal policy. For these reasons, telehealth is the recommended term for all occupational therapy services provided through ICT.

Use of Telehealth in Occupational Therapy

The overarching goal of occupational therapy is to support people in participation in life through engagement in occupation for "habilitation, rehabilitation, and promotion of health and wellness for clients with disability- and non–disability-related needs" (AOTA, 2014b, p. S1). This goal is achieved through the occupational therapy process: evaluation, intervention, and promotion or maintenance of health and participation outcomes for individuals, groups, and populations.

Occupational therapy services provided by means of telehealth can be *synchronous,* that is, delivered through interactive technologies in real time, or *asynchronous,* using store-and-forward technologies. Occupational therapy practitioners can use telehealth as a mechanism to provide services at a location that is physically distant from the client, thereby allowing for services to occur where the client lives, works, learns, and plays, if that is needed or desired.

Occupational therapy practitioners use telehealth as a service delivery model to, for example,

- Help clients develop skills;

- Incorporate assistive technology (AT) and adaptive techniques;

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[1]When the term *occupational therapy practitioner* is used in this document, it refers to both occupational therapists and occupational therapy assistants (AOTA, 2015b). *Occupational therapists* are responsible for all aspects of occupational therapy service delivery and are accountable for the safety and effectiveness of the occupational therapy service delivery process. *Occupational therapy assistants* deliver occupational therapy services under the supervision of and in partnership with an occupational therapist (AOTA, 2014a).

- Modify work, home, or school environments; and

- Create health-promoting habits and routines.

Some benefits of a telehealth service delivery model include increased access to services, especially for clients who live in remote or underserved areas; improved access to specific providers and specialists otherwise unavailable to clients; prevention of unnecessary delays in receiving care; and sharing of expertise between practitioners through remote consultation (Cason, 2012a, 2012b).

Telehealth may ameliorate the impact of personnel shortages, overcome transportation challenges, and be beneficial in situations where service to clients may be best served during nontraditional work hours of some traditional care models. By removing barriers to accessing care, including social stigma, travel, and socioeconomic and language barriers, the use of telehealth as a service delivery model within occupational therapy leads to improved access to care (Gardner, Bundy, & Dew, 2016; Hinton, Sheffield, Sanders, & Sofronoff, 2017; Levy et al., 2018).

Occupational therapy outcomes achievable through telehealth include the facilitation of occupational performance, participation in activities of daily living (ADLs) and instrumental activities of daily living (IADLs), health and wellness, role competence, well-being, quality of life, and occupational justice (AOTA, 2014b). Telehealth has potential as a service delivery model in every major practice area within occupational therapy. Given the variability of client factors, activity demands, performance skills, performance patterns, and contexts and environments, the candidacy and appropriateness of a telehealth service delivery model should be determined on a case-by-case basis using clinical judgment. See Appendix B for case examples supporting the use of telehealth within occupational therapy practice areas.

Evaluation Using ICT: Tele-Evaluation

ICT has broadened the possibilities for conducting evaluations. Studies have described the use of telehealth in areas that are of concern to occupational therapy, such as evaluation and consultative services for cognitive screening (Abdolahi et al., 2014; Stillerova, Liddle, Gustafsson, Lamont, & Silburn, 2016), orthopedic (hand) assessment (Worboys, Brassington, Ward, & Cornwell, 2017), lymphedema assessment (Galiano-Castillo et al., 2013), wheelchair prescription (Schein, Schmeler, Holm, Saptono, & Brienza, 2010; Schein et al., 2011), home assessment (Hoffman & Russell, 2008; Nix & Comans, 2017), adaptive equipment prescription and home modification (Sanford et al., 2009), and ergonomic assessment (Baker & Jacobs, 2012).

Clinical reasoning guides the selection and application of appropriate ICT necessary to evaluate clients' occupations, client factors, performance skills and patterns, contexts and environments. Occupational therapists should consider the reliability and validity of specific assessment tools when administered remotely.

Researchers have investigated the reliability of assessments used by occupational therapy practitioners and found the following assessments to be reliable when administered remotely through telehealth:

- The Montreal Cognitive Assessment (Abdolahi et al., 2014; Stillerova et al., 2016)

- The Mini-Mental State Exam (Ciemins, Holloway, Coon, McClosky-Armstrong, & Min, 2009; McEachern, Kirk, Morgan, Crossley & Henry, 2014)

- The Functional Reach Test and European Stroke Scale (Palsbo, Dawson, Savard, Goldstein, & Heuser, 2007)

- The Kohlman Evaluation of Living Skills and the Canadian Occupational Performance Measure (Dreyer, Dreyer, Shaw, & Wiitman, 2001)

- The Timed Up and Go Test (Hwang et al., 2016)

- The FIM, Jamar Dynamometer, Preston Pinch Gauge, Nine-Hole Peg Test, and Unified Parkinson's Disease Rating Scale (Hoffmann, Russell, Thompson, Vincent, & Nelson, 2008)

- The Ergonomic Assessment Tool for Arthritis (Backman, Village, & Lacaille, 2008).

In some cases, an in-person assistant, such as a caregiver or other health professional, may be used to relay assessment tool measurements or other measures (e.g., environmental, wheelchair and seating) to the remote therapist during the evaluation process.

When using a telehealth model for conducting an evaluation, occupational therapists must consider the client's health care needs, client's preference, access to technology, and ability to measure outcomes. Practitioners should adhere to all copyright laws and requirements when administering assessments (AOTA, 2015a). If assessment materials or the administration protocol requires modification when used via telehealth, this should be documented and factored into the scoring and interpretation of the assessment.

While AOTA supports state regulation of the profession and supports the role of state regulatory boards (SRBs) in regulating the practice of occupational therapy, certain requirements imposed by individual state regulations such as that a practitioner be physically located in the same state as the client to use telehealth technologies denies access to services and specialists unavailable to the client. Similarly, a requirement that a client must first be seen in person by the practitioner before receiving services via telehealth is not appropriate and should be determined by the practitioner based on clinical reasoning and ethical judgment (Cason, 2014). This requirement denies access to services and specialists unavailable to the client and negates the benefits of a telehealth service delivery model.

When telehealth is used on the basis of sound clinical reasoning and ethical judgment, evidence demonstrates that clients can be effectively treated without the need to first be seen in person by the remote practitioner (Baker & Jacobs, 2012; Hwang et al., 2016; Worboys et al., 2017). The occupational therapist may determine that an in-person evaluation or a hybrid evaluation approach (i.e., some aspects of the evaluation are administered through telehealth and other aspects in person) is required for some clients. Because of the evolving knowledge and technology related to telehealth, occupational therapists should review the latest research to remain current on the appropriate use of ICT for conducting evaluations.

Intervention Using ICT: Teleintervention

A telehealth model of service delivery may be used for providing interventions that are preventative, habilitative, or rehabilitative in nature. Factors to consider when planning and providing interventions delivered with ICT include

- Technology availability and options for the occupational therapy practitioner and the client;

- The safety, effectiveness, and quality of interventions provided exclusively through telehealth or a hybrid model;

- The client's choice about receiving interventions by means of telehealth;

- The client's desired outcomes, including their perception of services provided;

- Reimbursement; and

- Compliance with federal and state laws, regulation, and policy, including licensure requirements (AOTA, 2017a; Richmond et al., 2017).

Consultation Using ICT: Teleconsultation

Teleconsultation is a virtual consultation that includes the

- Remote provider and client, with caregiver as appropriate;

- Remote provider and local provider (e.g., therapist, durable medical equipment vendor, prosthetist, physician) with the client and caregiver, as appropriate; or

- Remote provider and local provider without the client present.

Teleconsultation uses ICT to obtain health and medical information or advice. Teleconsultation has been used to overcome the shortage of various rehabilitation professionals across the United States. For example, an occupational therapist can remotely evaluate and recommend adjustments to a client's prosthetic device using computer software with videoconferencing capability and remote access to a local clinician's computer screen despite the physical distance between the expert clinician and client (Whelan & Wagner, 2011). Similarly, Schein, Schmeler, Brienza, Saptono, and Parmanto (2008) demonstrated positive outcomes associated with teleconsultation between a remote seating specialist and a local therapist for evaluating wheelchair prescriptions.

In addition, teleconsultation may be used to conduct home safety and home modification evaluations (Romero, Lee, Simic, Levy, & Sanford, 2017), prevention and wellness services (Parmanto, Pramana, Yu, Fairman, & Dicianno, 2015), ergonomic consultation (Baker & Jacobs, 2012), preadmission consultation for patients undergoing total hip and total knee replacement (Hoffman & Russell, 2008), and to facilitate support groups for people with chronic conditions (Lauckner & Hutchinson, 2016). In the area of pediatrics, teleconsultation has been used to treat children with complex pediatric feeding disorders (Clawson et al., 2008), facilitate coordination and motor control in children with cerebral palsy (Reifenberg et al., 2017), support school-based services for children with complex medical needs (Cormack et al., 2016), and provide occupation-based coaching for caregivers of young children with autism (Little, Pope, Wallisch, & Dunn, 2018).

Monitoring Using ICT: Telemonitoring

Telemonitoring, or *remote patient monitoring (RPM),* is commonly used in the medical model for chronic disease management and involves the transmission of a client's vital signs (e.g., blood pressure, heart rate, oxygen levels) and other health data (e.g., blood sugar levels, weight, ADL performance, fall events) for review by a clinician to assure more timely monitoring. This type of monitoring can prevent health crises, emergency department use, and hospitalization and can promote health and wellness.

Occupational therapy practitioners may work on interprofessional teams using telemonitoring for chronic disease management, for instance. Practitioners may use ICT to monitor a client's

- Adherence to an intervention program (Paneroni et al., 2014),

- ADLs (Gokalp & Clarke, 2013),

- Cognitive changes (Stillerova et al., 2016), and

- Fall risk (Horton, 2008; Naditz, 2009).

Wearable and home-based sensor monitoring systems are being examined for efficacy with older adults to aid recovery of the ability to effectively and safely perform ADLs following hip fracture (Pol et al., 2017). Telemonitoring can be a tool to enable occupational therapy practitioners to assist clients in achieving desired outcomes. Further, telemonitoring can give occupational therapy practitioners insights and information about issues and concerns with performance in clients' natural environments.

Considerations for Occupational Therapy in Telehealth

Practitioner Qualifications and Ethical Considerations

It is the professional and ethical responsibility of occupational therapy practitioners to provide services only within each practitioner's level of competence and scope of practice. The *Occupational Therapy Code of Ethics* (AOTA, 2015a) establishes principles that guide safe and competent occupational therapy practice and that must be applied when providing occupational therapy services through a telehealth service delivery model. Practitioners should refer to the relevant principles from the Code and comply with state and federal regulatory requirements.

Principle 1A of the Code states that "occupational therapy personnel shall provide appropriate evaluation and a plan of intervention for recipients of occupational therapy services specific to their needs" (AOTA, 2015a, p. 2). This requirement reinforces the importance of careful consideration about whether evaluation or intervention through a telehealth service delivery model will best meet the client's needs and is the most appropriate method of providing services given the client's situation.

Clinical and ethical reasoning guides the selection and application of appropriate telehealth technology necessary to evaluate and meet client needs. Occupational therapy practitioners should consider whether the use of technology and service provision through telehealth will ensure the safe, effective, and appropriate delivery of services. Due to the intimate nature of some occupational therapy services (e.g., interventions related to dressing, bathing, toileting), special consideration should be made to avoid exposure of the client on camera in an undressed or otherwise compromised state. Targeting client factors and performance skills in a different context, viewing the client engaged in the occupation while wearing tight-fitting clothing or a bathing suit, and relying on caregiver report may be viable options to address the area of concern while upholding ethical principles and standards of conduct (AOTA, 2015a, 2017a).

In addition, the American Telemedicine Association's "Principles in Delivering Telerehabilitation Services" outlines important administrative, clinical, technical, and ethical principles associated with the use of telehealth (Richmond et al., 2017). Occupational therapy practitioners may use various educational approaches to gain competency in using ICT to deliver occupational therapy services. They may gain experience with telehealth and ICT as a part of entry-level education (Standard B.4.15; Accreditation Council for Occupational Therapy Education, 2018) or may participate in continuing education opportunities as clinicians to acquire knowledge of this service delivery model. Examples of ethical considerations related to telehealth are outlined in Appendix C.

Practitioners should have a working knowledge of the hardware, software, and other elements of the technology they are using and have technical support personnel available should problems arise (Richmond et al., 2017). They should use evidence, mentoring, and continuing education to maintain and enhance their competency related to the use of telehealth within occupational therapy.

Supervision Using Telehealth Technologies

State licensure laws, institution-specific guidelines regarding supervision of occupational therapy students and personnel, the *Guidelines for Supervision, Roles, and Responsibilities During the Delivery of Occupational Therapy Services* (AOTA, 2014a), and the *Occupational Therapy Code of Ethics* (AOTA, 2015a) must be followed, regardless of the method of supervision. Telehealth may be used while adhering to those guidelines to support students and practitioners working in isolated or rural areas (Bernard & Goodman, 2013; Miller, Miller, Burton, Sprang, & Adams, 2003; Nicholson, Bassham, Chapman, & Fricker, 2014; Rousmaniere & Renfro-Michel, 2016). Factors that may affect the model of supervision and frequency of supervision include the complexity of client needs, number and diversity of clients, skills of the occupational therapist and the occupational therapy assistant, type of practice setting, requirements of the practice setting, and other regulatory requirements (AOTA, 2014a).

Legal and Regulatory Considerations

Occupational therapy practitioners are to abide by state licensure laws and related occupational therapy regulations regarding the use of a telehealth service delivery model within occupational therapy (AOTA, 2015a, 2017a). AOTA supports state regulation of the profession and supports the role of SRBs in regulating the practice of occupational therapy.

Given the inconsistent adoption and non-uniformity of language regarding the use of telehealth within occupational therapy (AOTA, 2017b), it is incumbent upon the practitioner to check a state's statutes, regulations, and policies before beginning to practice using a telehealth service delivery model (Cason, 2014). Typically, information may be found on SRBs' websites, which often include links to relevant statutes, regulations, and policy statements. SRBs should be contacted directly in the absence of written guidance to

determine the appropriateness of using telehealth for the delivery of occupational therapy services within their jurisdictions. In addition, the policies and guidelines of payers should be consulted.

Practitioners engaging in interstate practice should consult the occupational therapy licensure board in their state as well as in the state where the client is located for further clarification on policies related to telehealth before rendering services. While a formal license portability mechanism (i.e., licensure compact) is not yet in place, some states have exemptions in licensure laws for temporary practice and for consultation. There is a mechanism for licensure portability through a federal rule (U,S. Department of Veterans Affairs, 2018) for practitioners providing services to veterans.

Occupational therapy practitioners are to abide by Health Insurance Portability and Accountability Act (HIPAA, 1996; Pub. L. 104–191) regulations to maintain security, privacy, and confidentiality of all records and interactions. Additional safeguards inherent in the use of technology to deliver occupational therapy services must be considered to ensure privacy and security of confidential information (Peterson & Watzlaf, 2015; Watzlaf, Zhou, Dealmeida, & Hartman, 2017). Occupational therapy practitioners are to consult with their practice setting's or facility's privacy officer or legal counsel or to consult with independent legal counsel if they are in independent practice or other employment or contracting situation to ensure that the services they provide through telehealth are consistent with protocol and HIPAA regulations.

Funding and Reimbursement

It is the position of AOTA that occupational therapy services provided through telehealth should be valued, recognized, and reimbursed the same as occupational therapy services provided in person. At this writing, Medicare does not list occupational therapy practitioners as eligible providers of services delivered through telehealth (Centers for Medicare and Medicaid Services, 2016). However, AOTA supports the inclusion of occupational therapy practitioners on Medicare's approved list of telehealth providers. The U.S. Department of Defense and Veteran's Health Administration uses telehealth to provide occupational therapy services as well as other telehealth programming (U.S. Department of Veterans Affairs, n.d.).

Opportunities for reimbursement exist through some state Medicaid programs; insurance companies; school districts; and private pay with individuals, agencies, and organizations. It is recommended that occupational therapy practitioners contact their state Medicaid agency or other third-party payers to determine the guidelines for reimbursement of services provided through telehealth.

When billing occupational therapy services provided by means of telehealth, practitioners may be required to distinguish the service delivery model, sometimes designated with a modifier (Cason & Brannon, 2011; Richmond et al., 2017). However, regardless of whether the services are reimbursed or the practitioner is responsible for completing documentation related to billing, the nature of the service delivery as being performed through telehealth should be documented.

Summary

Telehealth is a service delivery model that uses information and communication technology to deliver health-related services when the client is at a distance from the practitioner. AOTA asserts that occupational therapy practitioners may use synchronous and asynchronous ICT to provide evaluative, consultative, preventative, and therapeutic services to clients who are physically distant from the practitioner. Occupational therapy practitioners using telehealth as a service delivery model must adhere to all standards and requirements for practice, including the *Occupational Therapy Code of Ethics* (AOTA, 2015a), maintain the *Standards of Practice for Occupational Therapy* (AOTA, 2015b), and comply with federal and state regulations to ensure their competencies as practitioners and the well-being of their clients.

Occupational therapy practitioners must give careful consideration as to whether evaluation or intervention via telehealth will best meet the client's needs and provide the most appropriate method of providing services given the client's situation and the capacity and competence of the practitioner. Clinical and ethical reasoning guides the selection and application of appropriate use of telehealth to evaluate and meet client needs.

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Authors
Jana Cason, DHS, OTR/L, FAOTA
Kim Hartmann, PhD, OTR/L, FAOTA
Karen Jacobs, EdD, CPE, OTR/L, FAOTA
Tammy Richmond, MS, OTR/L, FAOTA

for

The Commission on Practice:
Julie Dorsey, OTD, OTR/L, CEAS, *Chairperson*

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Appendix A. Overview of Telehealth Technologies

Synchronous Technologies: Videoconferencing

Synchronous technologies enable the exchange of health information in real time (i.e., live) by interactive audio and video between the patient or client and a health care provider located at a distant site. Several options for HIPAA-compliant videoconferencing software are available. Software features commonly used with telehealth include screen sharing, onscreen annotation, and text chat. Additional features may include remote control of the client's camera to allow the occupational therapy practitioner to change the camera angle or to "zoom in" as needed (see Table A.1 for an overview of ICT used in telehealth).

Advantages of synchronous ICT include service provision within the context where occupations naturally occur (e.g., home, work, community), minimal infrastructure requirements, and lower costs for equipment and connectivity (e.g., residential service plan, data plan). Disadvantages may include privacy, security, and confidentiality risks; lack of infrastructure (e.g., limited access to high-speed Internet/broadband; inadequate bandwidth for connectivity); recurring expense (e.g., residential service plan, data plan); diminished sound or image quality; and technological challenges associated with end-user experience and expertise with videoconferencing technology (Cason, 2011; see Table A.1).

Asynchronous Technologies

Telehealth applications that are asynchronous, commonly referred to as *store-and-forward data transmission,* may include video clips, digital images, virtual technologies, and other forms of electronic communications. With asynchronous technologies, the provider and client are not connected at the same time. Potential applications within occupational therapy include home assessments and recommendations for home modifications that are based on recorded data of the home environment; recommendations for inclusion of ergonomic principles and workstation modifications that are based on recorded data of the work environment; and secure viewing of video and digital images for evaluation and intervention purposes.

Technologies That May Be Synchronous or Asynchronous

Telemonitoring Technologies

Occupational therapy practitioners providing services through telehealth technologies can take advantage of digital or *mhealth* (mobile health) devices. These include wearable devices (e.g., Apple Watch, Fitbit) and home devices (e.g., AMC Healthcare Console) that enable occupational therapy practitioners to monitor and subsequently provide services within varied environments. These technologies provide information that allows offsite occupational therapy practitioners to assess performance and modify services and the environment.

Telemonitoring technologies also enable occupational therapy practitioners to understand the real-life occupations and performance challenges of the client and to plan appropriate interventions. As a result, practitioners can tailor environmental accommodations for clients with physical limitations or can develop individualized technology-based cueing systems for clients with cognitive disabilities so that they can live more independently.

Sensor Technologies

Sensor technologies detect and respond to input or stimuli from an individual or the physical environment. Sensor technologies include some digital or mhealth devices (e.g., wearable devices), gaming systems, virtual reality (VR), augmented reality, the Internet of things, and sensor driven environmental and personal assistant technologies (e.g., Alexa through Amazon's Echo and Echo Dot, Google's Home and Home Mini).

Although typical use of sensor technologies does not constitute a telehealth service delivery model, live data (synchronous) streamed to a remote occupational therapy practitioner or recorded data (asynchronous) used

by an occupational therapy practitioner to monitor and adjust a client's course of treatment would constitute the use of sensor technologies within a telehealth service delivery model. Practitioners can use sensor technologies within a telehealth service delivery model when providing interventions, home exercise programs, or consulting in setting up a "smart home" to increase independence and performance within various contexts.

VR typically refers to the use of interactive simulations created with computer hardware and software to present users with opportunities to engage in environments that appear and feel similar to real-world objects and events. Occupational therapy practitioners can use a telehealth service delivery model with VR technologies when conducting evaluations and providing interventions. Telehealth combined with VR has been used in stroke rehabilitation (Corbetta, Imeri, & Gatti, 2015; DeLuca et al., 2017; Laver et al., 2017; Vanbellingen, Filius, Nyffeler, & Van Wegen, 2017), assessment for client's with traumatic brain injury using virtual environments (Lamargue-Hamel et al., 2015; Wright et al., 2016), training of users of power wheelchairs (Nunnerley, Gupta, Snell, & King, 2017; Sugita et al., 2012), and for rehabilitation for clients with Parkinson's disease (Albiol-Pérez et al., 2018) and hand injuries (Huang, Naghdy, Naghdy, Du, & Todd, 2018; Yeh et al., 2017).

Low-cost video capture gaming systems (e.g., Nintendo Switch, Sony PlayStation MOVE and PlayStation Virtual Reality Platform) were not developed specifically for rehabilitation, but they offer an easy-to-set-up, fun, and less-expensive alternative to the expensive VR systems. Although typical use of gaming systems does not constitute telehealth, live data (synchronous) streamed to a remote occupational therapy practitioner or recorded data (asynchronous) used by a practitioner to monitor and adjust a client's course of treatment would constitute a telehealth application of the devices.

Table A.1. Telehealth Technologies

Technology Type	Examples	Considerations
Synchronous	• Videoconferencing software for health care (e.g., Vsee, Zoom, Doxy.Me) • Consumer high-definition television videoconferencing • Telephone/POTS • Telehealth network with commercial videoconferencing system • Sensor technologies (with live-streaming data to remote practitioner)	• Confidentiality (security, privacy) • Integrity (information protected from changes by unauthorized users) • Availability (information, services) • Cost–benefit ratio • Socioeconomic considerations • Leveraging existing infrastructure (equipment and personnel) • Technology connection requirements (e.g., broadband, T1 line) • Sound and image quality • Equipment accessibility
Asynchronous	• Mobile messaging • Data from wearables or remote patient-monitoring devices • Digital images, videos, or files • Sensor technologies (with store-and-forward data to remote practitioner)	
Synchronous (interactive) or asynchronous (store-and-forward data)	Telemonitoring technologies – Home monitoring systems/devices – Sensor/wearable technologies Sensor technologies – Remote use of gaming and VR systems/devices	

Source. From "Telerehabilitation: An Adjunct Service Delivery Model for Early Intervention Services," by J. Cason, 2011, *International Journal of Telerehabilitation, 3*(1), p. 24. https://doi.org/10.5195/ijt.2011.6071 Copyright © 2011 by Jana Cason. Adapted with permission.

Note. POTS = plain old telephone service; VR = virtual reality.

Appendix B. Telehealth Case Examples

While not explicitly stated in each case example, occupational therapy practitioners should complete the following steps prior to implementing telehealth:

- Examine state telehealth laws and regulations that may affect the delivery of services using ICT

- Explore the state occupational therapy practice act and state occupational therapy board's website for additional guidance on the use of telehealth to deliver occupational therapy services within the state

- Inquire from the payer source about telehealth reimbursement and coding requirements

- Confirm with malpractice insurance carrier that malpractice policy provides same coverage for services provided through ICT.

In addition, practitioners engaging in interstate practice should examine state laws and regulations related to telehealth in the state where the client is located. Practitioners should also consult the occupational therapy licensure board in their state as well as in the state where the client is located for further clarification on policies related to telehealth before rendering services.

Case Description	Application of Telehealth in the Occupational Therapy Process	Intervention and Outcome
Mathew is an OT employed by a home health company. He provides services in multiple counties within a rural portion of the state where he lives. The company recently employed 2 OTAs to provide services in the same counties and has asked Mathew to provide the requisite supervision. Due to the large geographical area and limited days spent in each county, Mathew would like to incorporate telehealth as a means for supervision.	First, Mathew examines the practice act in the state where he is licensed to determine if there are any regulations or policies that may affect his ability to use telehealth to supervise OTAs. On investigation, Mathew learns that he is permitted to provide a portion of the required supervision hours using ICT/telehealth. Mathew also works with administrators within the home health company to identify reimbursement requirements of the third-party payers. Next, Mathew identifies ICT, including HIPAA-compliant videoconferencing software, to be used for remote supervision. A protocol for supervision using ICT and documentation (including process for countersignatures) is established in adherence with supervision requirements set forth in the state's practice act.	Use of ICT enables the OTAs to carry out the plan of care; Mathew will provide effective supervision and clinical support to 2 OTAs serving a large geographical area within the state. In adherence with his state's occupational therapy practice act, including supervision requirements, the use of telehealth enables Mathew and the OTAs to provide client-centered occupational therapy services in a home health setting.
Lisa, age 70 years, has difficulty performing her daily occupations because of a stroke resulting in right-sided weakness. Although she had learned compensatory techniques for completing ADLs, IADLs, and work, she wants to increase the function of her right hand, particularly for tasks related to managing her farm. Lisa learned of a program in a nearby community using new technology that might be beneficial for people with hemiparesis; however, the clinic is 2 hours from her home.	Lisa meets with her OT in a clinic for the initial evaluation. During the evaluation, Lisa learns additional strategies for incorporating her right hand to perform her farm work. She is fitted for a functional electrical stimulation orthosis that she can use at home once it is programmed in the clinic. Twice each week, Lisa meets with her OT by computer, using a Web camera and online video software. As Lisa continues to make progress, the OT instructs her in how to more effectively use her right hand for completion of ADLs and IADLs, including farm chores.	Lisa makes functional gains in using her right hand for everyday occupations. She reports that she is able to rely less on compensatory strategies and use her right hand more easily, especially while completing ADLs. Lisa achieved these outcomes with only 2 trips to the clinic and without therapist travel.

(Continued)

Case Description	Application of Telehealth in the Occupational Therapy Process	Intervention and Outcome
José, age 35 years, is administrative assistant working at an urban university. He has been employed in this position for 5 years. Recently, he began experiencing discomfort in his neck, shoulder, and back areas. He reported this discomfort, which he associated with computer work, to his immediate supervisor.	José scheduled an appointment with an OT who had expertise in ergonomic workstation evaluation. During his initial contact with the OT, he requested that because of his busy schedule, he would prefer to have his evaluation conducted through telehealth. The OT asked José to have photographs taken of him while working at his office computer workstation. The OT requested that the photographs be from multiple angles and then emailed to a secure platform, where the OT would be able to review them. In addition, José was asked to keep a time log for a week into which he would input information on his activities along with when he experienced discomfort. A consultation via videoconference was arranged, during which the OT reviewed findings from the photographs along with the time log. José reported on the time log that he sat at his computer workstation 100% of the time during the work day. During this time, he multitasked by using a hand-held telephone while keying. It was observed from the photographs that José was using a notebook computer, which placed him in an awkward posture for computing.	Explicit workstation modification recommendations were provided by the OT by means of a videoconference consultation with José. The recommendations included raising the notebook computer so that his head was not positioned in flexion or extension and that the monitor was about arm's length away (closed fist) and using a keyboard and mouse as input devices. An adjustable keyboard tray was recommended for the keyboard and mouse. On the basis of data from the time log, the OT encouraged José to change his work behaviors by taking regular stretch breaks every 20 minutes. A second videoconference consultation occurred within 2 weeks. José reported that his supervisor ordered the external notebook computer accessories and that this new workstation arrangement had reduced his discomfort.
Angela, age 10 years, has a complicated medical history that includes spina bifida. She is significantly limited in her ability to be mobile in the home and community. Although she uses a basic power wheelchair to drive around town and attend her family activities, it is in poor condition and too small for her. Angela cannot adequately reposition herself or properly perform a weight shift because of decreased UE strength and ROM.	Angela has trouble traveling and sitting for long distances. She and her mother meet with an OT in person at a nearby clinic. Concurrently, an OT who has expertise in wheeled mobility at another location participates in the occupational therapy session remotely using HIPAA-compliant videoconferencing software. The remote OT provides consultation to the local OT, Angela, and her mother about seating system frames, bases, and accessories; policy implications and funding mechanisms; and wheeled mobility and seating options.	After interviewing Angela and her mother and observing Angela navigate in her current chair, the remote OT recommends the appropriate power wheelchair and seating features. On approval from the insurance company, the remote OT uses the HIPAA-compliant videoconferencing software to monitor the delivery, evaluate the fitting, and provide feedback and advice to Angela about use of the wheelchair within the community and home. Angela benefited from services without the need to travel a long distance. The local OT gained additional knowledge about wheeled mobility and seating options.

(Continued)

Case Description	Application of Telehealth in the Occupational Therapy Process	Intervention and Outcome
Ethan, age 55 years, is a self-employed entrepreneur who has severe depression, anxiety, and isolation after head and neck cancer resection surgery. The surgery left one side of his face disfigured. He plans to have reconstructive surgery in the future. Ethan has difficulties with eating, fatigue, facial–body image, depression, and pain. He lives alone and over 50 minutes away from the hospital/outpatient therapy clinic. Ethan was seen by an OT in the hospital and prescribed outpatient occupational therapy for his physical and mental health needs. Due to travel distance to the outpatient therapy clinic and anxiety associated with being seen in public, Ethan is interested in the option to continue his therapy at home through ICT.	Ethan completed a telehealth participation screening and initial occupational therapy evaluation during his hospital stay. It was determined that he would continue with occupational therapy 2X/week via telehealth using secure videoconferencing software and a web camera within his home environment. During the biweekly occupational therapy sessions delivered via telehealth, focus is on establishing a therapeutic wellness plan and implementing compensatory eating techniques, pain management and relaxation techniques, stress management, and engagement in progressive physical activities. Ethan completes a home program and a daily journal sent to him by his OT through ICT.	Ethan is able to manage his physical and mental health needs and is able to leave his house to purchase groceries and complete other errands in his community. His pain is tolerable, and breathing and stamina have improved to allow 20–30 minutes of physical activity after 6 weeks of occupational therapy delivered through telehealth. Ethan continues his daily journaling. The OT will follow up with Ethan via telehealth weekly until reconstruction surgery and again after surgery to make sure Ethan continues his wellness plan.
Alex, age 7 years, is an elementary school student with a diagnosis of spastic diplegic cerebral palsy. Alex currently receives 45 minutes per week of direct school-based occupational therapy as a related service on an IEP to support academic performance. Alex typically attends classes in a general education classroom in a brick-and-mortar school but currently is receiving short-term homebound academic services due to a recent surgery. While recovering from the surgical procedure, Alex will be out of the classroom for 7–8 weeks and will receive academic tutoring services during this time.	To provide seamless delivery of school-based occupational therapy services, which Alex is entitled to under the IEP, the educational team proposes that Alex receive occupational therapy services via telehealth during the 7–8 weeks he is at home. The school-based OT is familiar with the use of telehealth, and the school district has previously explored software and hardware capabilities, as well as privacy, security, ethical, and other logistical considerations regarding the use of telehealth. The occupational therapy intervention, delivered via telehealth, consists of weekly direct services and ongoing collaborative consultation among parent, student, and OT. Each weekly virtual session lasts for 45 minutes. The student's parent is present throughout the live therapy sessions. The OT ensures that each telehealth session involves at least a 5-minute period of collaborative consultation, including a discussion of student progress and instructions for the implementation of a home program between sessions.	The use of a telehealth service delivery model enables Alex to continue to receive direct school-based occupational therapy services via ICT while on homebound services. The OT sees Alex at the same day and time as he was previously scheduled while in attendance in the school building, preventing any disruption to schedules. Parent satisfaction is high, and Alex's parent is actively involved in therapeutic sessions and facilitates the use of therapeutic strategies throughout the week. Alex continues to demonstrate functional improvements in performance in the areas of tool usage (e.g., scissors, glue stick, pencil), handwriting, literacy, and school-related self-care (e.g., donning/doffing coat) while on home services. He re-enters the brick-and-mortar school after 8 weeks with no regression in skills.

(Continued)

Case Description	Application of Telehealth in the Occupational Therapy Process	Intervention and Outcome
Jane, age 22 years, is an undergraduate student with a history of depression and anxiety. She has been unable to attend classes because her medications are making her drowsy, and she has become socially isolated from classmates. She is unable to get to classes on time or complete assignments in a timely manner. As a result of Jane's difficulty keeping medical appointments due to fatigue and anxiety, telehealth was selected as the preferred delivery method for occupational therapy services.	Jane worked with her OT using videoconferencing technology to identify and implement strategies to improve her occupational performance and participation in ADLs and IADLs. The OT requested that Jane complete a 1-week activity time log. Jane and the OT reviewed the log virtually where areas of challenges with attending classes, completing assignments and going to medical appointments were identified. They discussed strategies for reaching out the school's Disability Services to apply for reasonable accommodations such as a self-paced academic workload and flexible due dates for assignments. The OT suggested energy conservation strategies such as simplifying activities and setting realistic goals; spacing out activities throughout the day; and stress management strategies to address Jane's anxiety. For time management, the OT recommended CST and specific apps that Jane agreed to use. Jane and the OT agreed to meet weekly using a virtual platform.	Occupational therapy services through telehealth enabled Jane to identify and implement effective therapeutic strategies. As a result, she was able to complete the semester's courses with passing grades.
Rick, age 56 years, is a real estate agent who enjoys biking on the weekends in a bike club. He recently fell off his bike and fractured his collarbone on his right side. Treatment consisted of immobilization for 2 weeks with an UE sling. Rick received a referral for occupational therapy services. His physician has cleared Rick to remove the sling and return to full-time work with modifications and begin UE AAROM/ROM and progressive strengthening over the next 4 weeks. Rick prefers to receive occupational therapy services via telehealth because of his work schedule and difficulty traveling for appointments.	Rick was evaluated initially at the clinic to establish short- and long-term goals. During the initial visit, Rick completed a telehealth screening tool that demonstrated that he had adequate hardware and bandwidth at his home and work, technology skills, and appropriate impairment to receive occupational therapy services via telehealth. The OT had Rick sign a telehealth informed consent and establish an account to access the company's HIPAA-compliant video-conferencing software. Rick logs into the company's web portal 2 times per week for 4 weeks for occupational therapy services. The OT provides progressive ROM, stretching, and therapeutic exercises; functional activities to improve use of his right UE, including the shoulder, neck, and upper back; and home and work modification recommendations to reduce unnecessary stress on the fracture site.	Rick completed all scheduled online occupational therapy sessions and his home exercise and stretching program. He continued to work full-time while receiving therapy and returned to biking after 8 weeks of therapy. All materials related to patient education, home program, and home and work modification recommendations were archived in Rick's account on the company's web portal. Rick downloaded and printed materials provided by his OT after each session.

Note. AAROM = active assisted range of motion; ADLs = activities of daily living; CST = cognitive support technology; HIPAA = Health Insurance Portability and Accountability Act; IADLs = instrumental activities of daily living; ICT = information and communication technology; IEP = individualized education program; OT = occupational therapist; OTA = occupational therapy assistant; ROM = range of motion; UE = upper extremity

Appendix C. Ethical Considerations and Strategies for Practice Using Telehealth

Ethical Considerations	Strategies for Ethical Practice
Fully inform the client regarding the implications of a telehealth service delivery model vs. an in-person service delivery model.	Occupational therapy personnel shall . . . • "Fully disclose the benefits, risks, and potential outcomes of any intervention; the personnel who will be providing the intervention and any reasonable alternative to the proposed intervention" (Principle 3B) • "Establish a collaborative relationship with recipients of service and relevant stakeholders to promote shared decision making" (Principle 3D) • "Obtain consent after disclosing appropriate information and answering any questions posed by the recipient of service or research participant to ensure voluntariness" (Principle 3C)
Abide by laws and scope of practice related to licensure and provision of occupational therapy services using telehealth.	Occupational therapy personnel shall . . . • "Maintain awareness of current laws and AOTA policies and Official Documents that apply to the profession of occupational therapy" (Principle 4E)
Adhere to professional standards.	Occupational therapy personnel shall . . . • "Provide occupational therapy services, including education and training, that are within each practitioner's level of competence and scope of practice" (Principle 1E) • "Take steps (e.g., continuing education, research, supervision, training) to ensure proficiency, use careful judgment, and weigh potential for harm when generally recognized standards do not exist in emerging technology or areas of practice" (Principle 1F) • "Maintain competency by ongoing participation in education relevant to one's practice area" (Principle 1G) • "Maintain awareness of current laws and AOTA policies and Official Documents that apply to the profession of occupational therapy" (Principle 4E)
Understand and abide by approaches that ensure that privacy, security, and confidentiality are not compromised as a result of using telehealth.	Occupational therapy personnel shall . . . • "Maintain the confidentiality of all verbal, written, electronic, augmentative, and non-verbal communications, in compliance with applicable laws, including all aspects of privacy laws and exceptions thereto (e.g. Health Insurance Portability and Accountability Act [Pub. L. 104-191], Family Educational Rights and Privacy Act [Pub. L. 93-380])" (Principle 3H)
Understand and adhere to procedures if there is any compromise of security related to health information.	Occupational therapy personnel shall . . . • "Maintain the confidentiality of all verbal, written, electronic, augmentative, and nonverbal communications, in compliance with applicable laws, including all aspects of privacy laws and exceptions thereto (e.g., Health Insurance Portability and Accountability Act [Pub. L. 104–191], Family Educational Rights and Privacy Act [Pub. L. 93–380])." (Principle 3H) • "Maintain awareness of current laws and AOTA policies and Official Documents that apply to the profession of occupational therapy." (Principle 4E)
Assess the effectiveness of interventions provided through telehealth by consulting current research and conducting ongoing monitoring of client response.	Occupational therapy personnel shall . . . • "Refer to other providers when indicated by the needs of the client" (Principle 1I) • "Reevaluate and reassess recipients of service in a timely manner to determine if goals are being achieved and whether intervention plans should be revised." (Principle 1B) • "Use, to the extent possible, evaluation, planning, intervention techniques, assessments, and therapeutic equipment that are evidence-based, current, and within the recognized scope of occupational therapy practice" (Principle 1C)
Recognize the need to be culturally competent in the provision of services via telehealth, including language, ethnicity, and socioeconomic and educational background that could affect the quality and outcomes of services provided.	Occupational therapy personnel shall . . . • "Facilitate comprehension and address barriers to communication (e.g. aphasia; differences in language, literacy, culture) with the recipient of service (or responsible party), student, or research participant" (Principle 3J) • "Assist those in need of occupational therapy services in securing access through available means" (Principle 4B) • "Address barriers in access to occupational therapy services by offering or referring clients to financial aid, charity care, or pro bono services within the parameters of organizational policies" (Principle 4C)

Note. AOTA = American Occupational Therapy Association. Ethical principles are from AOTA's (2015a) *Occupational Therapy Code of Ethics* (2015).