Practice Reports

Steps to Offering Low Vision Rehabilitation Services Through Clinical Video Telehealth

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Telehealth clinical applications, which allow medical professionals to use telecommunications technologies to provide services to individuals remotely, continue to expand in areas such as low vision rehabilitation, where evaluations are provided to patients who live in rural areas. As with face-to-face low vision rehabilitation, the goal of clinical video telehealth is to help patients cope with a loss of vision, as well as accept and recognize challenges and provide skills to maintain independence and safety, and to prevent depression. Important aspects of implementing clinical video telehealth are increasing access, building capacity, saving time, and decreasing travel costs for patients and providers in several clinical specialties. Reducing barriers to care is achieved through telehealth by enabling patients to avoid traveling long distances when they feel they are unable to drive safely or when they rely on family or friends for transportation. The purpose of this article is to illustrate the development, need, and benefits of establishing a low vision clinical video telehealth clinic, and to increase access to low vision rehabilitation among the aging population with vision loss.

Uncorrectable vision loss due to conditions such as macular degeneration and diabetic retinopathy often restricts mobility and travel of older adults (especially by automobile), which is one of the barriers to receiving low vision rehabilitation faced by partially sighted individuals who live in rural areas. *Telehealth* is defined as the use of electronic communication and information technologies to provide or support long-distance clinical health care, patient and professional health-related education, public health, and health administration (National Advisory Committee on Rural Health and Human Services, 2015).

In order to provide better care to veterans with visual impairments, especially those residing in rural or highly rural areas, in 2011 the U.S. Department of Veterans Affairs (VA) Blind Rehabilitation Services began pursuing innovative care delivery strategies. Federal funding was allocated to VA low vision clinics throughout the United States to purchase telehealth equipment, which challenged providers to develop protocols and best practices for low vision clinical video telehealth rehabilitation. This expansion of telehealth services improved access to care and increased patient satisfaction (U.S. Department of Veterans Affairs, 2015).

Nonprofit rehabilitation agencies that provide low vision rehabilitation services to older adults within their own communities also have challenges regarding innovative care delivery strategies, especially in rural or highly rural areas. By using this rapidly expanding technology, other public and private sectors can also improve access to care for patients with visual impairments who live in rural areas.

Telemedicine continues to advance and has been critical to improving health outcomes in rural regions in the United States. *Rural regions* are those outside of urban areas that generally have populations smaller than 2,500 (U.S. Department of Health & Human Services, 2015). Residents in rural regions often experience challenges in accessing medical and rehabilitation services because of the vast

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distances that may separate them from more densely populated regions, where services are typically located. To address the problem of access to health care, VA telehealth service clinics are set up around the United States for cardiology, neurology, psychiatry, and a range of other medical services that patients can access electronically without being physically in the presence of the health professional. Ophthalmology and optometry clinics within several VA hospitals utilize "store and forward" telehealth technology for virtual encounters by which they capture digital retinal images and then send them electronically to physicians for medical opinions or diagnoses (U.S. Department of Veterans Affairs, 2015). Clinical video telehealth uses "real-time" interactive video conferencing to assess, treat, and provide care to patients remotely. Clinical video telehealth is also used to link a patient at a clinic to a service provider at another location.

Beginning in November 2012, low vision clinical video telehealth services were first being offered at the Vision Impairment Services for Outpatient Rehabilitation (VISOR) clinic, Buffalo VA Medical Center, which serves several rural sites in western New York. Initially, two low vision clinical video telehealth clinics were offered per week. That number increased regularly, and currently up to 16 clinics are offered per week. As population aging continues, the demand for low vision clinical video telehealth and other types of telehealth services is likely to continue growing.

Effective delivery of low vision rehabilitation services utilizing low vision clinical video telehealth was achieved after overcoming significant challenges, and it continues to be successful in increasing access and utilization of vision rehabilitation services. The success of these services was found to depend on the willingness of a family member or friend to participate in the patient's session, since treatments are more likely to be successful if a helper (agreed to by the patient) accompanies the visually impaired individual to his or her session.

The purpose of this article is to describe an interdisciplinary collaboration among ophthalmologists or optometrists and blind rehabilitation therapists intended to bring together technical knowledge that improves access to care and increases patient satisfaction with services provided by blind rehabilitation agencies. The current low vision clinical video telehealth clinic at the Buffalo VA will be discussed as an example of successful application of technology, and guidance is offered for implementing a low vision clinical video telehealth clinic in a private office or nonprofit public agency.

The Buffalo VA VISOR model

The effective delivery of low vision rehabilitation services to older adults utilizing telehealth requires significant planning. A major challenge is to implement these services without compromising comprehensive low vision rehabilitative care, including individualized adjustment programs. A barrier for comprehensive low vision telehealth in general is that specific optometric testing, such as distance visual acuity measurement, lensometry, refraction, ocular health assessment, and confrontation visual fields, cannot be performed through clinical video telehealth. Therefore, a team approach is necessary. Within the Buffalo VA VISOR model, the team includes a low vision optometrist and a primary care optometrist or ophthalmologist (private practitioner and VA) at three rural VA facilities and 10 additional community-based outpatient centers. Accessing and utilizing specific clinical information from local optometrists or ophthalmologists allows low vision rehabilitation to be completed by a low vision optometrist via clinical video telehealth at the Buffalo VA VISOR clinic (Ihrig, 2014).

Steps for implementing the model

Team of professionals

Before a clinic is established, a team of professionals needs to be coordinated. In terms of service providers, when comprehensive low vision rehabilitation services need to be administered, necessary professionals include a low vision optometrist and a blind rehabilitation therapist. For patients, allies need to be recruited to support the vision rehabilitation process such as family members or friends. In addition, individuals who live independently in their own homes in rural communities may have one or several local optometrists or ophthalmologists participating on the team to provide clinical reports.

Space for a clinic

Telehealth technology can be added to an existing office used by a low vision optometrist and blind rehabilitation therapist at a local nonprofit agency or private office, for example, since these individuals will be providing the low vision clinical video telehealth consultation.

Local optometrists or ophthalmologists in rural areas who join the team may be able to designate clinic space in their office that is convenient for patients to access. Some practitioners may have "satellite clinics" that have space in which the required technology could be housed. Low vision telehealth clinic days and designated times are coordinated with the low vision clinical video telehealth provider and are established at the local optometrist or ophthalmologist office.

Equipment

Clinical video telehealth equipment that has access to the Internet is required at the provider site and each patient site. Equipment may include readily available technology such as iPads running the FaceTime videochat application or more complex technological alternatives. At the Buffalo VA VISOR clinic, the Cisco TelePresence PrecisionHD USB camera, a high-definition business-quality video device, fosters a sense of "telepresence," a face-to-face experience with remote participants over the network that simulates being in the same room (Ackerman, Filart, Burgess, Lee, & Poropatich, 2010; Agha, Roter, & Schapira, 2009; Finkelstein, Speedie, & Potthoff, 2006; Lawrence, 2010; Yellowlees et al., 2011). Cisco Jabber licensed video software (formerly called Movi) is deployed on the VA network and allows extended, high-density video communication. The VA derives value from telehealth not only in implementing telehealth technologies, but also in how it uses the technologies to target care and case management to facilitate access to care and improve the health of older veterans, who benefit by continuing to safely live in their own homes and local communities.

In addition to the high-tech video equipment, patients receiving care also need access to low vision devices for demonstration purposes. At the VA's designated community outpatient centers, an array of illuminated stand magnifiers, magnifying lamps, near-visual acuity cards, talking clocks, talking watches, and giant-view clocks are used to demonstrate their functioning during telehealth encounters. If available, an electronic video magnifier or closed-circuit television (CCTV) can also be set up at the patient site for demonstration purposes. Low vision adaptive devices that are accessible for the low vision optometrist or blind rehabilitation therapist to direct proper assistance to the patient can vary at each local site.

Clinical reports

The patient's ocular health and refractive status (Sunness & El Annan, 2010) are determined by a local optometrist or ophthalmologist prior to low vision clinical video telehealth services being scheduled. Specifically, the following clinical information is necessary: unaided distance visual acuity,

current spectacle correction with distance acuity, refraction with best-corrected visual acuities at a distance, visual field testing (confrontation or electronic), other relevant tests results, and current diagnosis and treatment options.

At the VA, the VISOR low vision optometrist reviews the electronic health record, including scanned reports of each patient who has been evaluated by a local VA or non-VA optometrist or ophthalmologist. Once clinical information is current and complete, the patient is scheduled for a low vision clinical video telehealth consultation at the patient's rural site.

The success of any clinical video telehealth program depends on equipment that works properly. Well-functioning equipment enables providers and patients to view each other clearly and facilitates demonstration of new skills. Nevertheless, unforeseen issues that may arise include power outages and poor Internet connections. Both issues, although rare, could affect the quality and utility of the clinical video telehealth experience. Observation through low vision clinical video telehealth allows the low vision optometrist and blind rehabilitation therapist to properly educate and train each patient with the help of the friend or family member. Consultations typically last approximately two hours.

Low vision clinical video telehealth consultation

During the low vision clinical video telehealth consultation, staff members guide patients into the specific telehealth room and connect the technology so the patient is able to view the low vision clinical video telehealth provider on the monitor. As with face-to-face evaluations, it is important to ask for and document the patient's response regarding their agreement to share information during this evaluation with the family member or other helper who is present with the patient in the exam room. Within this modality, a low vision optometrist provides rehabilitation consultations, which are similar to in-person, face-to face evaluations. Low vision clinical video telehealth evaluations include a thorough discussion and assessment of the patient's functional vision. Throughout the consultation, the low vision optometrist asks specific questions, listens to the patient's answers, and responds to the patient's questions appropriately.

On the day of the low vision clinical video telehealth consultation, observations by the provider are also documented and a comprehensive history is gathered based on the patient's functional ability (Boerner & Wang, 2012; Colenbrander, 2010). The low vision optometrist demonstrates and instructs the patient and family member or friend on proper focusing techniques with specific low vision optical devices. The sighted family member or friend is able to guide the patient as needed. Low vision adaptive devices that are available for demonstration can vary at each local site. The helper observes the provider through the monitor as needed to help the patient properly utilize optical and nonoptical devices. The patient's family member or helper does not require specialized training on the proper utilization of low vision devices prior to the telehealth evaluation.

Blind rehabilitation therapist clinical video telehealth consultation

A telehealth consultation with a blind rehabilitation therapist immediately follows the telehealth consultation by the low vision optometrist. With recommendations from the low vision optometrist, a blind rehabilitation therapist provides consultation in low vision therapy and prepares the patient for adaptive skills training to be utilized in the home (Bambara et al., 2009; McDonnall, 2011; Wei et al., 2012). A blind rehabilitation therapist reviews and documents a comprehensive list of functional vision rehabilitation issues and assesses therapy recommendations. Proper training and education begins during the first

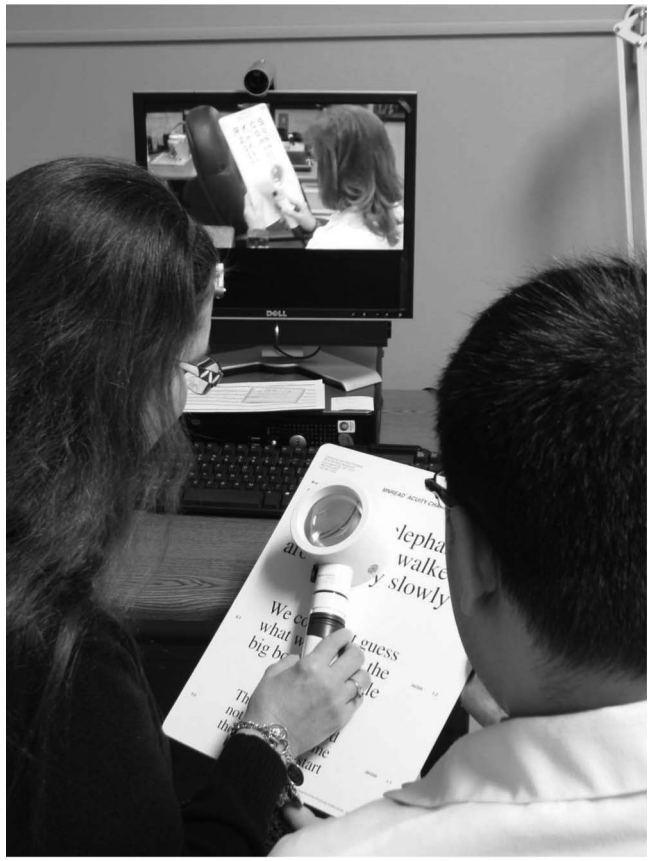

Figure 1. Illustrates two people on the patient side who can see and speak to the provider through their camera and monitor during a low vision clinical video telehealth session.

session and is continued in subsequent sessions. An in-person, face-to-face low vision rehabilitation follow-up appointment is scheduled by the therapist at the patient's home to train on and assess other areas of adaptive living skills as needed. The home visit may include a home safety checklist (Barstow, Bennett, & Vogtle, 2011), orientation and mobility training, computer access training, and other skills not readily taught using clinical video telehealth.

Discussion

Outcomes of the Veterans Affairs Low Vision Intervention Trial (LOVIT) provided evidence of the effectiveness of in-person, face-to-face low vision rehabilitation. This randomized clinical trial demonstrated that outpatient low vision rehabilitation services provided to veterans significantly improved the functional visual ability of patients who were moderately and severely impaired by low vision compared with patients in a similarly impaired wait-list control group who received no low vision services and who lost functional ability during the same interval of time. It was also noted that the observed magnitude of the treatment effect of the LOVIT outpatient program is comparable with that of a VA inpatient blind rehabilitation program observed in an earlier study. As a result of the trial, it was recommended that low vision rehabilitation services be offered as early as possible after visual impairment is diagnosed, due to a small decline in functional ability over time observed in the wait-listed control

group (Stelmack et al., 2008; Stelmack, Tang, Wei, & Massof, 2012). For patients who cannot travel to an outpatient or inpatient rehabilitation program, comprehensive low vision rehabilitation services are not provided and the patient risks a decline in functional ability. The increase in low vision clinical care at the Buffalo VA VISOR clinic, because of the addition of low vision telehealth clinics, has shown the effectiveness of access by helping more partially sighted and legally blind patients who could not schedule comprehensive low vision rehabilitation services in an outpatient or inpatient setting. Clinical video telehealth currently allows low vision rehabilitation with low vision optometrists and blind rehabilitation therapists in a manner that is timely and without the need for the patient to travel long distances to receive services. Clinical video telehealth and the team approach involving highly qualified professionals who are dedicated to optimum vision rehabilitation enable each patient to maximize his or her independent abilities by beginning low vision rehabilitation as early as possible.

At the completion of the patient's low vision rehabilitation goals, following several sessions, a QuickCard survey is completed regarding all low vision rehabilitation services (face-to-face and telehealth), and these survey data are monitored on a monthly basis. The majority of patients have provided positive feedback. Specifically regarding telehealth, patients noted they appreciate the low vision clinical video telehealth clinic because it allowed them to receive services they would not otherwise be able to access. In the future, a retrospective review of medical records of participants will assess the validity of this unique pilot clinic.

In the private sector, further information is needed to assess insurance carriers and Medicare regarding payments to providers for telehealth vision rehabilitation services in satellite private offices and blind agencies. Medicare payment for telehealth services is established in 1834(m) of the Social Security Act and covered under the Medicare Fee-for-Service program. A limited number of services are reimbursed with conditional requirements (Centers for Medicare and Medicaid Services, 2015; Social Security Act, Title 18, Section 1834).

Conclusion

Telehealth is helping improve the rural health care system in many ways, and low vision telehealth is an option for private low vision optometrists who provide services to older adults in the private sector. The ability to access a low vision optometrist remotely improves access to care for patients, particularly older people who may have to travel long distances to receive care. Many older patients with low vision who are unable to drive safely may forego low vision rehabilitation because of inconvenience and the difficulty associated with traveling long distances when they do not have transportation resources or options. Utilizing low vision telehealth technologies can reduce travel costs and stress for patients when the need to travel to receive health care is lessened or eliminated. Establishing a "virtual" network of low vision optometrists can also improve access to low vision rehabilitation, and can reduce barriers associated with long distances and provider shortages.

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