



Clinical Informatics in Physiatry

Telehealth in Physical Medicine and Rehabilitation: A Narrative Review

Adam S. Tenforde, MD, Jaye E. Hefner, MD, Jodi E. Kodish-Wachs, MD,
Mary A. Iaccarino, MD, Sabrina Paganoni, MD, PhD

Abstract

Telehealth refers to health care interactions that leverage telecommunication devices to provide medical care outside the traditional face-to-face, in-person medical encounter. Technology advances and research have expanded use of telehealth in health care delivery. Physical medicine and rehabilitation providers may use telehealth to deliver care to populations with neurologic and musculoskeletal conditions, commonly treated in both acute care and outpatient settings. Patients with impaired mobility and those living in locations with reduced access to care may particularly benefit. Video-teleconferencing has been shown to be effective for management of burn patients during acute rehabilitation, including reduced health care use expenses and less disruptions to care. Telehealth can facilitate developing interprofessional care plans. Patients with neurologic conditions including stroke, spinal cord injury, traumatic brain injury, and amyotrophic lateral sclerosis may use telehealth to monitor symptoms and response to treatment. Telehealth also may facilitate occupational and physical therapy programs as well as improve weight management and skin care in patients with chronic conditions. Other applications include imaging review in sports medicine, symptom management and counseling in concussion, traumatic brain injury, and pain management programs. Limitations of telehealth include barriers in establishing relationship between medical provider and patient, ability to perform limited physical examination, and differences in payment models and liability coverage. The expansion of telehealth services is expected to grow and has potential to improve patient satisfaction by delivering high quality and value of care.

Introduction

Maximizing function and quality of life via a patient-centered team approach are fundamental principles in the practice of physical medicine and rehabilitation (PM&R) [1]. Achieving these goals with our patients is sometimes challenging in practice because a patient's ability to treat and manage his or her health does not exist solely in the confined location of hospitals and outpatient clinics but also in the schools, homes, markets, pharmacies, and communities. A patient's interactions with health care today may be limited by a number of factors, including geography, time, finances, and access to technology. Yet, a patient's success with managing his or her health depends on a combination of social and physical determinants, including transportation access, literacy, and social support [2].

Telehealth (which encompasses telerehabilitation, telerehabilitation, teleconsult, telemedicine, and remote nonclinical

services) is a method of care delivery that increases access to health care services and may support and facilitate patient-centered care [3]. Telehealth-enabled care delivery leverages telecommunication devices to provide medical care outside the traditional face-to-face, in-person medical encounter. Health care delivery for a patient using telehealth may include the combination of history, modified physical examination, diagnostic testing, assessment, and management. Patient treatment and longitudinal care using telehealth include behavioral medicine [4], medications [5], patient education [6], and shared decision making [7]. Medical care and active decision-making may be provided either synchronously (real-time interaction) or asynchronously (communication between a patient and provider is conducted at different times).

Research providing the strongest evidence for telehealth, including telerehabilitation, was characterized by the Agency for Healthcare Research and Quality in

June 2016 [8]. The authors of this report concluded systematic reviews demonstrate moderate evidence and potential benefit of delivering telerehabilitation care for cardiovascular disorders and other conditions commonly treated in PM&R. Research providing strongest evidence for telehealth applications was in remote monitoring, communication, and education/counseling for chronic conditions including cardiovascular disease and diabetes. Positive outcomes associated with telehealth included reduction of hospitalization admissions, mortality, and possible cost effectiveness using tele-rehabilitation [8].

An earlier 2009 report in Canada characterized the effectiveness of telehealth applications for specialties that share patient populations commonly seen by physiatrists including neurology, cancer, pulmonary, mobility, and chronic pain. Of the highest-quality studies, 81% were successful, with 47% having clinically significant outcomes [9]. Other studies have documented use of this technology for both acute and chronic conditions commonly seen by physiatrists, including burn rehabilitation [10], amyotrophic lateral sclerosis (ALS) [11], disorders of consciousness [12], spinal cord injury (SCI) [13], musculoskeletal [14] and spine conditions [15], and chronic pain [16].

The purpose of our narrative review is to characterize the current knowledge of telehealth applications and outcomes in health care delivery for patients seen in the field of PM&R. Our review includes an introduction on health care delivery of telehealth. Subsequently, we outline current evidence based on available literature for treatment of both inpatient and outpatient neurologic and musculoskeletal conditions. We conclude with a summary of the current state of telehealth for health care delivery and future directions of research to optimize patient care and efficiency.

Telehealth in Health Care Delivery

Telehealth uses technology to deliver medical care outside the traditional in-person patient visit and continues to evolve in capacity over time. There is no formal structure for delivery of telehealth; delivery may use one or more available technologies. Telehealth capacity changes rapidly and is facilitated by the growth of technology; however, the basic mechanism for delivery of telehealth includes a mode of communication between the involved parties by which data are exchanged.

The exchange of data may be in numerous forms, including written, audio, visual, or haptic (data obtained from patient contact with technology). Technologies such as e-mail, cellular texting, traditional phone lines, videoconferencing, cameras, 3-dimensional motion sensors, sensors, global positioning systems, robotics, and virtual reality each offer a different type of data exchange. Pramuka and Van Roosmalen describe

[17] how clinical application influences the pairing of technologies for health care delivery. For example, incorporating a physical examination into telehealth encounter may be achieved with both visual and haptic data in addition to audio data. Chronic disease monitoring may use sensor data in addition to audio or text sources. In contrast, provider-to-provider remote team conference may involve teleconferencing. Understanding the clinical need is critical to the technology selection and the data mode being used.

The delivery of telehealth is dependent on both the adoption of access to the technology used by the patient. Users also must have the desire to use the tele-rehabilitation technology, including access to hardware and ability to install software along with support for troubleshooting. Providing a framework to facilitate this technology is important for user adoption. For example, patients may need instructions on how to most effectively use video teleconferencing tools or applications to initiate the conference and to share the screen [17]. Technology usability for people with illness and disability may require additional adaptations and modifications. Passwords may be challenging for someone with cognitive deficits; other forms of security identification such as biometric data, including fingerprints, may be more appropriate. Patients with dysarthric speech may not be able to use voice-recognition solutions and may require augmentative or alternative communication devices to be incorporated into routine telehealth delivery of care. Therefore, the pairing of technology and data delivery must be individualized to patient-specific needs.

Acute Care Indications

The field of neurology is largely responsible for the introduction of telehealth to health care with the successful implementation of telestroke programs to deliver acute stroke care in remote locations [18]. Telestroke is now an established modality of care with growth in leading neurology departments [19] and allows for delivery of prompt emergency stroke care in geographic regions that have low coverage of neurology providers [20]. A meta-analysis of studies evaluated management of acute ischemic stroke patients with intravenous thrombolysis using tissue plasminogen activator delivered through telestroke networks. This study concluded similar outcomes at 3 months for patients managed by telestroke compared with stroke center-guided thrombolysis of intravenous tissue plasminogen activator delivered in the 3-hour time window [21]. Additional studies suggest that telestroke is cost-effective [22-24]. Telehealth also is used increasingly to increase access to specialized care for acute neurologic symptoms. Consultation with remote neurologists for patients admitted to rural hospitals to work-up and manage neurologic symptoms results in shorter hospital

Download English Version:

<https://daneshyari.com/en/article/5575172>

Download Persian Version:

<https://daneshyari.com/article/5575172>

[Daneshyari.com](https://daneshyari.com)