Implementation of a Framework for Telerehabilitation in Clinical Care Across the Continuum During COVID-19 and Beyond

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Abstract: The COVID-19 pandemic has propelled an unprecedented global implementation of telemedicine and telerehabilitation as well as its integration into the healthcare system. Here, we describe the clinical implementation of the A3E framework for the deployment of telerehabilitation in the inpatient and outpatient rehabilitation continuum by addressing accessibility, adaptability, accountability, and engagement during the COVID-19 pandemic. By using an organized, coordinated, and stratified approach, we increased our telerehabilitation practice from 0 to more than 39,000 visits since the pandemic began. Learning from both the successes and challenges can help address the need to increase access to rehabilitation services even beyond the COVID-19 pandemic.

Key Words: Telerehabilitation, Telemedicine, Technology, Rehabilitation

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Access to rehabilitative care was challenging even before the COVID-19 pandemic, not only for patients with pulmonary disease[1] but also for conditions causing new disability, such as stroke.[2] Depending on the population, only 5%–30% of individuals who needed rehabilitation services actually received them. Telemedicine, defined as the use of two-way videotelephony to conduct medical encounters, was invented to solve the problem of access to medical care.[3] However, until COVID-19 reimbursements for telemedicine, consultations were limited to underserved areas and to specific situations, such as telestroke consultations. The impetus for telestroke, that is, the use of telemedicine in acute stroke care,[4] was to increase the utilization of thrombolysis in ischemic stroke, which required neurological expertise that was not widely available.[5] Telestroke consultations have now been shown to accurately diagnose stroke mimics[6]; mitigate racial, ethnic, and sex disparities in stroke care[7]; and improve the delivery of acute stroke care overall.[8] The experience with telestroke suggests that both access to specialized care and the quality of the care delivered can improve with the incorporation of telemedicine into care delivery.

The COVID-19 pandemic provided such an opportunity for rehabilitation. In general, the integration of telemedicine in rehabilitation has been slower than in other specialties, because of our reliance on physical contact for both assessment and treatment. However, the need for isolation suddenly made telerehabilitation necessary, and the change in Medicare coverage made it possible to provide telerehabilitation outside of research projects.

Research has shown that telerehabilitation can enhance care in several populations. The incorporation of telerehabilitation in spinal cord–injured patients improved functional outcomes and patient satisfaction.[9] Recent studies on telerehabilitation for stroke have demonstrated comparable efficacy to traditional face-to-face therapy.[10,11] A Cochrane review of 22 studies also concluded that telerehabilitation is noninferior to face-to-face rehabilitation, although more research is needed to demonstrate its clinical efficacy.[12] However, in most of these studies, telerehabilitation platforms have been used to primarily provide task- and context-specific intensive repetitive training, rather than the entire gamut of comprehensive rehabilitation services.[13]

Our multihospital healthcare system attempted to avail of the opportunity provided by the pandemic to improve access to rehabilitative care across the continuum. To do this, we adopted a framework that was recently proposed to address barriers to providing rehabilitation using technology, which suggests that technology must enhance Accessibility, Adaptability, Accountability, and Engagement (the A3E framework).[14] This article details how we successfully deployed technology and implemented telerehabilitation across the continuum of care in the context of the A3E framework during the COVID-19 pandemic. We believe that the lessons learned can be useful to rehabilitation providers and administrators to increase access to rehabilitation services more broadly even beyond the pandemic.

DEPLOYMENT OF TELEREHABILITATION ON THE INPATIENT SERVICE

Technology Setup

At the Johns Hopkins Hospital campus, we used the bedside tablets that were already available before the pandemic. An external Bluetooth speaker was, however, added to improve audio quality and enable the volume to be adjusted to

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accommodate patients with hearing impairments. The Zoom platform was adopted because of its immediate availability before an institutional electronic medical record–based platform could be launched. Later, Zoom was incorporated into the electronic medical record and enabled providers to initiate an encounter directly with a patient without a meeting ID. The clinical customer service representative team was given the responsibility of ensuring proper setup and positioning of the devices for ease of use and maximal visibility of both parties ahead of the scheduled telerehabilitation appointments. At the Johns Hopkins Bayview Medical Center, where there was a shortage of tablets, the available tablets were stored, charged, and sanitized at the nursing station, and the nurses were responsible for setting up the tablets for patient encounters.

Accessibility to Inpatient Rehabilitation Services

Accessibility encompasses awareness of the benefits of rehabilitation, access to the appropriate frequency of visits, duration of rehabilitation, intensity of prescribed activities, availability of technological resources needed, and affordability of rehabilitation services. On the acute care service for inpatients, we rapidly reorganized the inpatient consult service to meet the needs of both COVID-19 and non–COVID-19 patients by first creating a dedicated telerehabilitation consult team. The multidisciplinary telerehabilitation team consisted of physical therapists, occupational therapists, and speech-language pathologists. This team screened and identified patients appropriate for telemedicine based on their cognitive status, mobility levels, safety, and therapy goals. To streamline the process, the bedside nurse coordinated the scheduling of therapy and placed the patient's phone and tablet within reach of the patient. The therapist verbally walked the patient through joining a Zoom meeting on the bedside tablet. These processes ensured accessibility to rehabilitation services for the largest number of patients in the safest manner.

On the inpatient rehabilitation unit, telemedicine was used for any issue that arose after daily in-person rounds. Consulting physicians and care management teams were given the option to evaluate patients via telemedicine. Easy accessibility to telemedicine made it feasible to address urgent issues without delay. All telerehabilitation services were scheduled around the in-person physical therapist, occupational therapist, and speech-language pathologist schedules to avoid potential conflict. The rehabilitation psychology team was able to successfully address cognitive and emotional needs for both COVID and non-COVID patients.

Adaptability to Impairment Levels and COVID-19 Status

Adaptability refers to the ability of technological solutions to serve patients with varying impairment levels in the physical, cognitive, and psychosocial domains. The acute care service team caters to patients with varying degrees of functional impairment. Integration of telerehabilitation greatly facilitated the tailored provision of rehabilitation services in a systematic manner, for the largest number of patients stratified by their functional level using the Activity Measure for Postacute Care (AM-PAC),[15,16] which our institution adopted to evaluate mobility and daily activity limitations even before the pandemic. High functioning patients (AM-PAC raw scores ≥22) who could benefit from a few in-person therapy visits and then could be treated with telerehabilitation were placed in the Enhanced Recovery after COVID-19 (ERAC) program. Lower functioning patients (AM-PAC raw scores = 12–21) requiring daily in-person therapy for an extended period were placed in the acute hospital rehabilitation intensive service (ARISE) until they could move up to the ERAC. The COVID-19–positive patients who qualified for inpatient rehabilitation received acute inpatient rehabilitation equivalent therapy while on the medical floor under the supervision of a consultant physiatrist (Fig. 1).

Several measures were taken to ensure patient safety and success with telerehabilitation despite their impairment level and COVID-19/non–COVID-19 status. Both the tablet and Bluetooth speakers were lined with disposable protective covers. Interpretation services were provided for patients who required them. Some patients with low cognitive and independence levels required personal safety attendants who enabled telerehabilitation services; these patients may not have otherwise been able to receive telerehabilitation.

Accountability to Ensure Quality of Services

Accountability refers to the willingness to accept responsibility to continue rehabilitation beyond the patient-provider encounter. Team meetings ensure provider accountability and were adjusted to either all video conferences or minimum in-person attendance, requiring only the attending physiatrist, charge nurse, and bedside nurse, with others joining via video conference. Telerehabilitation forced patients to be active participants rather than passive recipients of rehabilitation therapy, as there were no hands-on passive treatments. To promote increased patient engagement, the telerehabilitation team coordinated with the in-person therapists to send rehabilitation supplies to their patients, which included therabands, grip strengthening blocks, thera putty, fine motor coordination exercise materials, activity booklets, and handouts. These handouts were used during the treatment sessions via screen share and were also available to patients after the therapy session to promote practice, and carryover into daily activities. Patients who needed outpatient rehabilitation via telerehabilitation were evaluated in-person by the outpatient therapy team on the day of discharge and telerehabilitation kits were prepared to facilitate remote rehabilitation at home.

Patient and Family Engagement With Rehabilitation

Engagement represents all the efforts that patients (and their families) make during rehabilitation to derive benefit. On the inpatient rehabilitation floor, family members and caregivers were encouraged to engage in the patients' therapy sessions via video calls, enabling them to see the patients' participation and ask questions in real time. If live participation was not possible, recorded videos were sent, and additional teaching was done via video calls. Teletraining was usually supplemented with in-person curbside family training on the day of discharge to provide hands-on teaching and ensure patient safety at home. For example, the therapist reviewed mobility, including bathroom transfers with the family via video training, which bolstered their confidence in taking the patient home. The patient handouts and exercise programs used in the hospital could

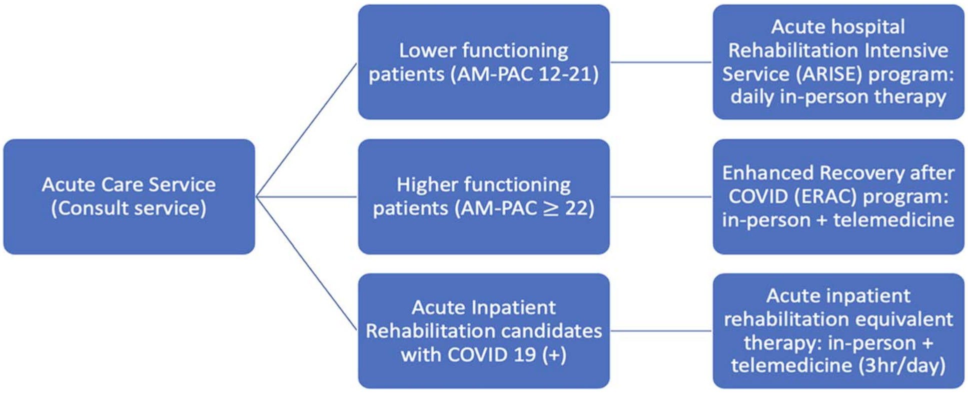

FIGURE 1. Algorithm for stratifying in-patient services using AM-PAC raw scores.

also be used at home to continue engaging the patient and caregiver in rehabilitation.

DEPLOYMENT OF TELEREHABILITATION ON THE OUTPATIENT SERVICE

Technology Setup

Outpatient care during the pandemic shifted from in-person visits to telemedicine and telerehabilitation visits. Several changes were made to optimize the transition of care from the inpatient to the outpatient setting. While on the inpatient floor, patients were encouraged to identify a device (desktop/laptop/tablet/smartphone) with an internal/external camera, speaker, and microphone that they could use at home. They were also advised on the Internet speed necessary for successful video visits. Generally, an Internet speed of 5–8 megabits per second is required for high-definition video streaming. The system used by Johns Hopkins Medicine, however, requires 8.13 megabit per second. Because wireless connections can sometimes have more signal interruptions, wired devices were often encouraged. The inpatient team ensured that patients had access to MyChart (of the EPIC software system), an online connection platform that allows them to access their medical records and communicate with providers on their devices. Alternative means of Health Insurance Portability and Accountability Act (HIPAA) compatible communication (e.g., Zoom, Doximity) were also established. Clinical customer service representative staff or therapists made sure that all patients admitted to the unit had MyChart setup on their personal devices to maintain the delivery of care in the outpatient setting.

Once discharged, a transition guide (a certified rehabilitation registered nurse) checked to ensure that patients who were discharged from the hospital were able to keep their follow-up telemedicine appointments and addressed barriers that arose. We provided telerehabilitation kits (Fig. 2) to make the telerehabilitation visits practical for both the patient and their providers. The kits were given to the patients for use during the therapy sessions and for home exercise programs and did not have to be returned. The kits included basic assessment tools as well as discipline-specific items to address the patient's specific needs. The basic assessment/physical therapist kit includes a universal phone tripod, a blood pressure monitor, a pulse oximeter, a gait belt, a dynamometer, an assortment of Therabands of different strengths, and a rope to perform the 10-m walk test remotely. The occupational therapist kit includes a grasp kit and a separate vision kit. The speech-language pathologist kit includes items preassembled to meet the patient's swallowing, motor speech, and/or cognitive needs. In addition, we adopted a commercially available Food and Drug Administration–approved neurorehabilitative gaming platform, the MindMotion GO (MMGO), to complement standard of care. This technology was donated to the Johns Hopkins Hospital and was deployed at no cost to the patient for six weeks, after which it had to be returned. The MMGO consists of a computer with a Microsoft Kinect camera to track large body movements and a Leap Motion sensor to track finger, wrist, and forearm movements. Twenty-six games are available on the gaming platform to target strength, dexterity, balance, endurance, coordination, trunk flexibility, and gait. Each game is calibrated to determine a patient's available range of motion to ensure appropriate play and is customizable for difficulty level and duration of exercise for both in-person and remote use. The games are selected based on each patient's unique needs. The MMGO was deployed in the inpatient and outpatient settings, although the frequency and duration of use was greater among outpatients.

Accessibility to Outpatient Rehabilitation Services

Patients in need of rehabilitation commonly face barriers in accessing care because of their inability to drive, as well as the inability of caregivers and family members to bring them to their appointments. Telemedicine provided a convenient alternative. The greatest limitation was, however, lack of access to technology due to socioeconomic barriers, as well as cognitive deficits and generational gaps that limited the use of available technology.

Two telemedicine multidisciplinary specialty clinics were established to take care of groups that were particularly hard hit during the pandemic: patients with COVID-19 and patients with stroke.

1) The Postacute COVID-19 Team (PACT) clinic was established to provide specialized care to address the unique rehabilitation needs of COVID-19 survivors in the outpatient setting through an interdisciplinary standardized approach.

FIGURE 2. Low-tech telerehabilitation kits were created to facilitate synchronous telerehabilitation and home exercise programs across disciplines.

All COVID-19 patients discharged from the hospital were referred to the Physical Medicine and Rehabilitation (PMR) PACT clinic, and eligibility was determined as shown in Figure 3. Patients seen in the PMR PACT clinic are evaluated to determine their functional status after COVID-19, to assess for COVID-19–related complications, including exercise intolerance, chronic fatigue, speech/swallow symptoms, cognition, sleep quality, and depression.

2) The Joint Stroke Transitional Technology Enhanced Program (JSTTEP) was established to ensure that patients received the right level of neurological and rehabilitative services after discharge. All patients discharged home from the acute stroke unit were scheduled for a multidisciplinary telemedicine visit with a neurologist and a physical therapist, as well as another visit with a physiatrist and an occupational therapist. These joint visits enabled a comprehensive risk assessment for medical and functional limitations, including falls, and on the spot scheduling for subsequent therapy if needed.

To ensure that all patients who needed rehabilitation services had access to it at the right level, we developed an outpatient e-triage algorithm (Fig. 4). The triage algorithm helped maintain continuity of care from inpatient to outpatient settings and establish the frequency of in-person versus telerehabilitation visits. Three questions first established whether there was a need for in-person therapy: (1) is there potential for loss of life or limb if treatment is delayed, (2) does the treatment plan require hands-on care, and (3) is there a potential for permanent functional deficit or deformity, hospital readmission, or additional surgery if treatment is delayed? A special caveat for essential workers with an occupational functional deficit was also included. Everyone else was scheduled for telerehabilitation visits. As the pandemic evolved and outpatient centers started to reopen, we were able to adapt the algorithm to better fit the needs of the patient by offering hybrid options for therapy, which included in-person evaluation and treatment along with telerehabilitation. Each therapist had time assigned for both types of visits depending on their role. The MMGO improved accessibility to rehabilitation for many high-risk neurologically impaired and deconditioned patients who had poor endurance. Because these patients had access to the platform at home, they could engage in short sessions several times a day rather than being constrained by the therapists' calendar, enabling endurance training at their own pace.

Adaptability to Impairment Levels and COVID-19 Status

A remote team dedicated for telemedicine was created to implement a universal telemedicine workflow to ensure successful virtual visits. For a typical appointment, the patient was called 30 mins prior to assist the patient with the check-in process. Following the appointment, providers communicated with a dedicated team through a message pool created in the electronic medical record to coordinate outpatient care, including follow-up scheduling, referrals, imaging, and other workup. Performing a thorough physical examination through a virtual encounter presented another challenge. To address this, we redesigned our standard physical examination to maximize its use in the absence of a provider's physical presence and educated patients to have a caregiver or family member present for the encounter to assist with the physical examination when possible. A separate telemedicine clinic dedicated to COVID-19 patients described previously catered to the needs of these patients.

Although the standard frequency of therapy is twice a week, it was recognized that some patients after stroke need more frequent rehabilitation therapy to get to the next level of

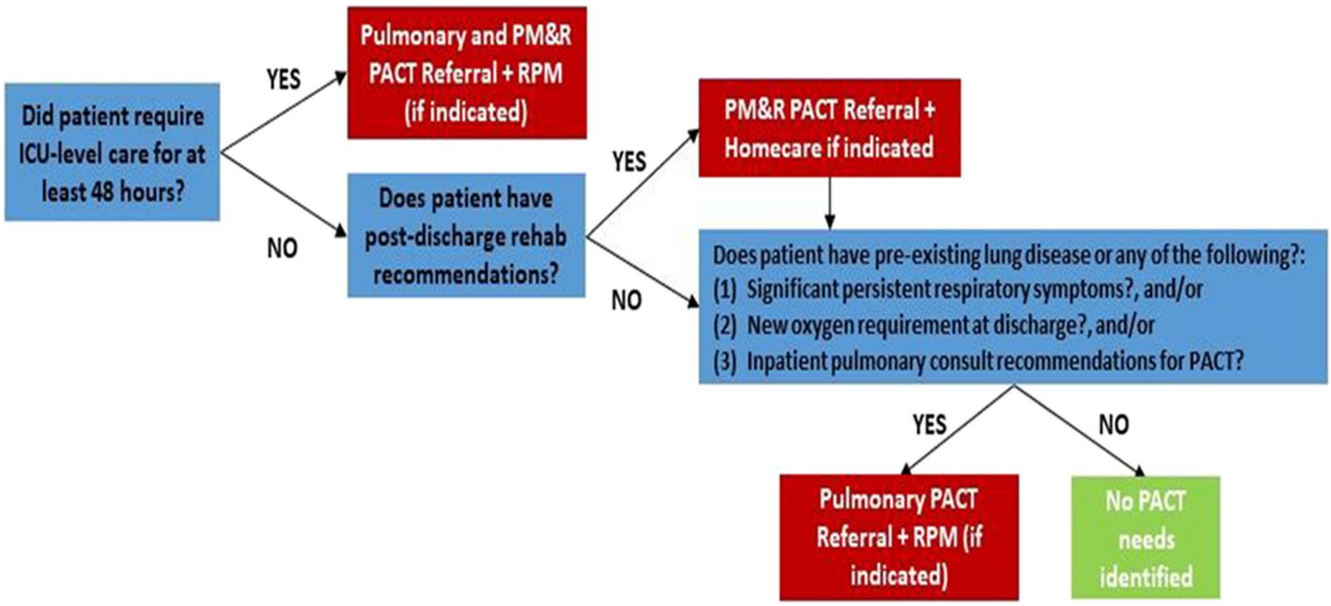

FIGURE 3. Postacute COVID-19 Team (PACT) clinic eligibility after hospital discharge. PM&R, physical medicine and rehabilitation; RPM, remote pulse oximetry monitoring.

ability. Therefore, we risk stratified patients to adapt the frequency of therapy based on their mobility, activities of daily living, and cognitive level on the corresponding outpatient AM-PAC short forms, and created multidisciplinary targeted care plans to cater to patient's needs at each level (Table 1). Patients with the lowest AM-PAC scores (standardized score <35, level 4) receive high-frequency (5 times per week) therapy because of the severity of their impairment; inadequate therapy can make these patients highly vulnerable for complications, including readmissions, adverse events such as falls, and poor recovery. Many of these patients initially received home care and home therapy until outpatient facilities opened for hands-on care. Patients with moderately severe impairments on their AM-PAC (score = 35–52, level 3) receive moderate frequency therapy (twice per week) and are frequently eligible for a hybrid model—receiving some hands-on therapy in addition to telerehabilitation and education on self-management in their own environment for example, using the MMGO and/or telerehabilitation kits. Those who are less severe on the AM-PAC (score = 53–66, level 2) received a few in-person visits

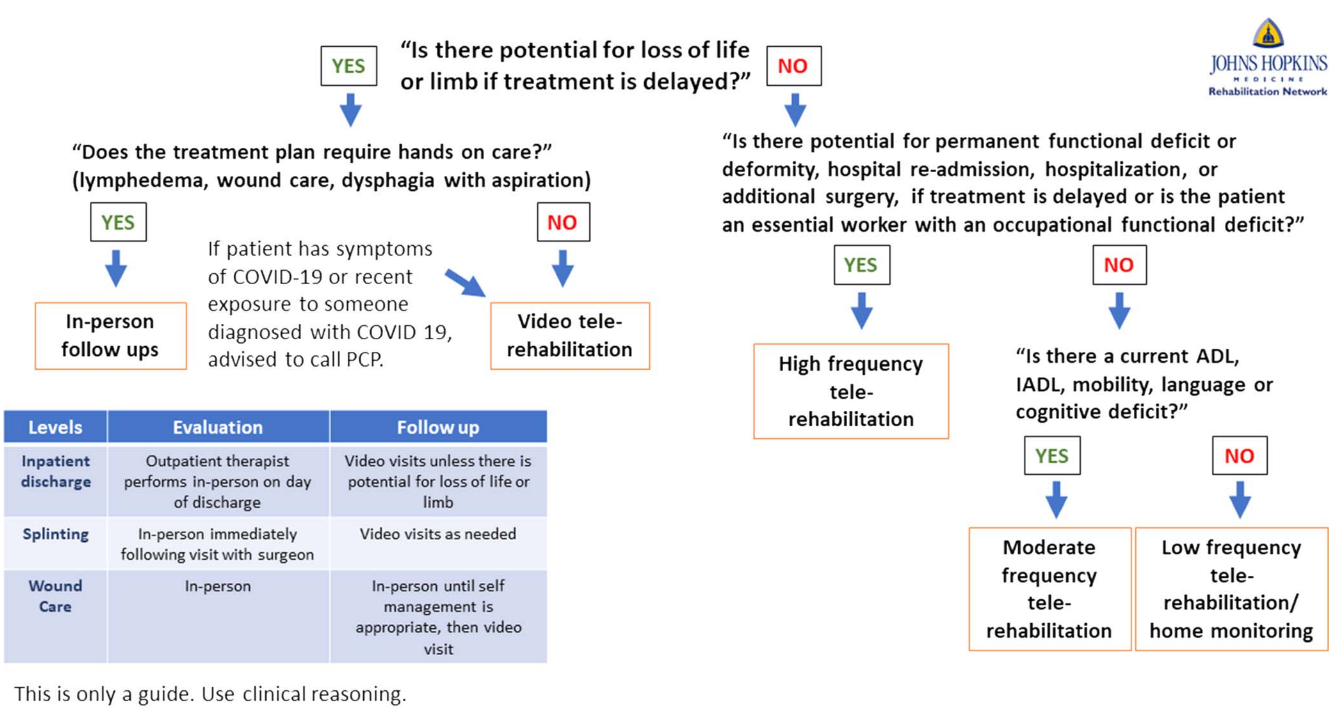

FIGURE 4. The Johns Hopkins outpatient e-triage algorithm for in-person and telerehabilitation during COVID-19.

TABLE 1. Targeted care plans for mobility based on AM-PAC scores

Risk Level	Targeted Care Plan
Level 1 AM-PAC score = 67–100	• Task-specific training based on patient's functional goals • High-intensity interval training • Stroke prevention and lifestyle modification education (applicable for all levels)
Level 2 AM-PAC score = 53–66	• High-intensity interval training • Patient-specific balance interventions • Functional lower limb strengthening (squats, step-ups, multidirectional walking) • MMGO • Development of comprehensive HEP
Level 3 AM-PAC score = 35–52	• Walking with caregiver • Patient-specific balance interventions • Repetitive practice of functional mobility for aerobic conditioning • Functional lower limb strengthening • MMGO (with caregiver as needed) • Development of comprehensive HEP
Level 4 AM-PAC score = 0–34	• Bed mobility training, transfer training • Static and dynamic seated balance, progress to standing • Supported part task practice of walking • Strengthening of weak muscle groups • Education on forced use paradigms as appropriate • Development of comprehensive HEP

AM-PAC, Activity Measure for Post Acute Care™; HEP, home exercise program; MMGO, MindMotion GO telerehabilitation platform.

for evaluation and training (e.g., 1–2 times per week) with follow-up telerehabilitation. We also catered to patients who were generally independent (AM-PAC score >67, level 1) but had some limitations requiring a few sessions of therapy. These patients received only telemedicine evaluations and a few telerehabilitation visits. Education and self-management in their own environment became the primary focus of these visits. The MMGO also facilitated therapy in a wide range of patients, as it catered to individuals who were preambulatory (level 3) with some setup and assistance from caregivers, as well as in those who were mildly impaired (level 1, e.g., those needing fine motor skills training). As the clinics reopened, we developed hybrid models for in-person hands-on treatment for manual and/or tactile cueing of MMGO use, along with synchronous and asynchronous telerehabilitation with the MMGO. We set up processes to ensure that these visits were covered by insurance or provided the patients with information on cost upfront.

Accountability to Ensure Quality of Services

With the changes in clinical encounters brought on by the pandemic, measures were taken by the medical team to ensure proper accountability for optimal patient care in the outpatient setting. As mentioned previously, teams and corresponding messaging pools were formed to maintain the standards for the check-in and check-out processes formerly maintained during in-person encounters. Although it is common practice to make follow-up appointments at the time of discharge, a telemedicine work flow needed to be created to ensure that the PACT and JSTTEP appointments were set up properly, and that patients were educated on what to expect and how to prepare for the visit. This not only solidified proper rehabilitation follow-up but also enabled follow-up on medical management with a specialist when needed.

The MMGO platform specifically enabled a HIPAA secure and privacy–compliant record to be kept of the time spent interacting with the platform, the games played, and the use of desirable versus undesirable compensatory strategies over time through the remote web companion. Even when the MMGO was used asynchronously, that is, independent of the therapist, "as homework," the adherence to assigned routines, performance, and progress could be monitored remotely by the therapist by viewing the web companion, which keeps track of the patients' performance. The games are selected by the therapist for the patient on an individual basis from several options. This feature greatly increased accountability and provided useful feedback to continue or modify the therapy program to match the needs and abilities of the patient.

Patient and Family Engagement With Rehabilitation

As a secondary benefit, telemedicine visits have helped augment patient and caregiver engagement both during outpatient telemedicine appointments and in between visits. The telemedicine-adapted physical examination is optimized by the engagement of caregivers and family members, allowing them to serve an active role in the encounter and thus gain a better understanding of the patients' abilities. Family and caregiver engagement also serve to enhance accountability with follow-up by involving an additional person who will remain in close contact with the patient after the visit. Furthermore, the flexibility in scheduling offered by telemedicine allows both the patient and the provider to increase engagement in the care plan as a more convenient alternative to in-person encounters.

Telerehabilitation often encouraged increased family involvement for guarding, physical assist with mobility and transfers, assisting with exercise and overall greater engagement in their loved ones' recovery. The MMGO also greatly increased engagement of patients and families in the therapy regimen because the therapy was provided using gaming. The increased engagement was noted during in-person, synchronous, and asynchronous telerehabilitation sessions. Patients' home exercise programs were recorded and tracked for both duration as well as level of intensity for each game played. Compensations were also detected to determine how much of the intended movement was completed for each gaming task. The use of the MMGO platform enabled patients to engage in their own care while being monitored by their therapists.

Outcomes

The purpose of this article is to describe the administrative deployment of technology to implement telerehabilitation across the continuum of care to maintain accessibility to rehabilitation during the COVID-19 pandemic; it was not to examine impact on patient outcomes. Hence, Table 2 presents administrative data from fiscal years (FYs) 2019 (prepandemic),

TABLE 2. Maintaining accessibility during the pandemic with telerehabilitation

	FY 2019	FY 2020	FY 2021
In-person visits	140, 238	118,977	104,138
Video visits	NA	11,963	27,693
Other visits	NA	44	10
Total visits	140,238	130,984	131,841

"Other" includes telehealth visits such as remote monitoring, which were not clearly telephone or video visits.

FY, fiscal year; NA, not available.

2020 (prepandemic for 9 mos and first 3 mos of the pandemic), and 2021 (during the pandemic) obtained from the hospital operations dashboard for all outpatient visits by physicians and therapists. Before the COVID-19 pandemic, we delivered no telerehabilitation at all. In FY 2020, there was a 15% decrease in the number of in-person visits compared with the previous year, which was partially made up for by telerehabilitation (approximately 9% of the total number of visits). In FY 2021, the number of in-person visits decreased by 26% compared with FY 2019, but the total number of visits was relatively unchanged from FY 2020 because of the early and coordinated deployment of telerehabilitation, which accounted for 21% of the total visits. The no-show rates were 6.37% for physician visits and 7.35% for therapy visits with telerehabilitation, which were comparable with the historical average no-show rate of 7.57% for in-person visits from 2015 to 2019. There were no adverse events reported that were attributed to telerehabilitation.

DISCUSSION

Through the integration of multidisciplinary telerehabilitation in an organized, coordinated, and stratified manner, our healthcare system successfully extended rehabilitation during the COVID-19 pandemic both in the inpatient and outpatient settings. We used the A3E framework to design, select, and deploy technology to address frequently encountered barriers to accessibility, adaptability, accountability, and engagement.[14] We discuss the lessons learned and the path forward to successfully implement telerehabilitation beyond the COVID-19 pandemic.

Although telerehabilitation has been written about for over a decade,[17,18] there was not a clear impetus to deploy it until the COVID-19 pandemic. At the onset of the pandemic, several authors shared best practices for implementing telemedicine in rehabilitation,[19] and discussed barriers and challenges to implementing telerehabilitation for those with disability.[20] Key barriers were infrastructure and access barriers, regulatory and legislative barriers, operational challenges, and communication barriers. These were some of the barriers that we were able to address through an organized, coordinated, and stratified effort. We were fortunate to already have some of the infrastructure in place to implement telerehabilitation such as: (1) the adoption of the AM-PAC across the continuum of care to stratify patients; (2) the availability of bedside or unit-owned tablets to provide telerehabilitation to those who qualified; and (3) the ability to quickly create telerehabilitation kits and deploy the MMGO technology. The regulatory, legislative, operational, and communication barriers were overcome because of a concerted institutional effort to implement telemedicine services rapidly and efficiently through the office of digital health.

We grew our telerehabilitation practice safely from 0 to more than 39,000 visits and were able to maintain the total number of rehabilitation visits despite the pandemic. Other studies have shown high patient and provider satisfaction with telerehabilitation.[21,22] An area of dissatisfaction noted has been in the deployment of technology. Patients with disability, particularly those with visual and hearing impairments, were particularly disadvantaged.[23,24] However, this seems to be an opportune moment to recognize the value of technology that has been developed for disability,[25] while also recognizing that technology can create disparities, which must be addressed.[26] What is needed at the very least is access to basic phone and Internet connectivity and telemedicine literacy. The low-tech telemedicine kits were designed to provide the basic technology to facilitate both synchronous audio-video–based telerehabilitation, as well as asynchronous telerehabilitation; however, remote monitoring is not possible. The use of the MMGO enabled asynchronous, remotely monitored telerehabilitation as well, and provided a level of engagement with neurogaming that is not available with standard rehabilitation equipment. The greatest benefit of the deployment of technology was the education of patients and caregivers that rehabilitation is a continuous rather than an episodic endeavor.

Our experience with the implementation of telerehabilitation during the COVID-19 pandemic suggests that it is well poised to extend comprehensive rehabilitation beyond the pandemic. With the incorporation of telemedicine and telerehabilitation, we can be more connected with our patients, can enter their home, use available resources to create functional goals that are contextually relevant and meaningful, and, with the right technology, monitor adherence and progress. However, although family- and patient-centered rehabilitation can be provided remotely for individuals who are mild to moderately impaired and who have engaged family support, it is much more challenging for people who live alone, are disabled, and socioeconomically disadvantaged. These individuals require additional human resources to access and use the technology. The use of technology for monitoring and engagement of individuals is a relatively new frontier that can greatly enhance the delivery and uptake of rehabilitation. This requires greater integration of technology into business models for care delivery to facilitate hybrid care, that is, in-person, as well as synchronous and asynchronous telerehabilitation, and the creation of treatment standards that lead to efficient and effective care for the right patients. The silver lining of the pandemic could be an overhaul of the models of care delivery across the continuum, eventually leading to improved accessibility, adaptability, accountability, and engagement to reduce the burden of disability.

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