An Innovative Redesign of Stroke Telerehabilitation Occupational Therapy Documentation and Administration Tools

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Background

- Stroke telerehabilitation is an emerging occupational therapy (OT) practice area and is effective for improving upper extremity motor function and performance with activities of daily living (Cramer et al., 2019; Saragih et al., 2022).
- Despite evidence supporting its treatment efficacy, clinical translation of telerehabilitation OT is challenged by organizational constraints (Juckett et al., 2022), such as burdensome documentation processes.
- A 2023 analysis by Morrow and colleagues found that a telerehabilitation session required more labor resources than an in-person outpatient rehabilitation session due to the increased time needed to document telerehabilitation encounters using traditional documentation processes.
  - ➥ The most time consuming and cost-intensive barriers identified were the lack of patient management and documentation processes specific to virtual OT service delivery.

Project Aims

Aim 1: Create a telerehabilitation OT-specific referral process to differentiate telerehabilitation referrals from ambulatory outpatient OT referrals.

Aim 2: Develop administrative workflows specific to telerehabilitation OT for management of referrals, patient screening, and digital literacy training.

Aim 3: Create Electronic Health Record (EHR)-integrated documentation processes for telerehabilitation OT.

Methods

- We conducted a Quality Improvement (QI) project, supported by grant funding, that was led by two registered and licensed OTs with clinical experience in multiple settings of our hospital system.
- We established an interdisciplinary team to (1) review current clinical / administrative processes and (2) identify barriers / supports to the implementation of telerehabilitation within the statewide telehealth network.
- The OTs met regularly with the Biomedical Informatics Center (BMIC) team over an 8-month period to design, build, and test telerehabilitation OT documentation tools.
- Educational resources (e.g., flyers, in-services, training resources) were disseminated to providers in the stroke healthcare network.

Results
Aims 1 and 2: Administrative Tools

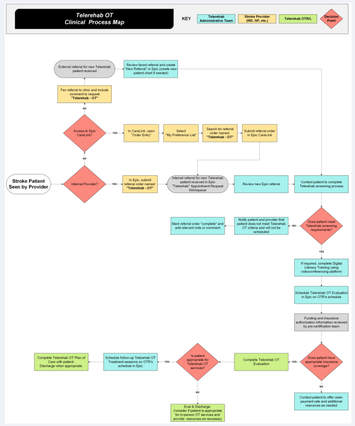

Figure 1 (Above, Left): Telerehabilitation OT Clinical Process Map

- In collaboration with the Therapeutic Services leadership team, administrative staff, and EHR Information Systems (IS) teams, we mapped existing OT referral processes and identified the need to create a unique work queue for telerehabilitation referrals.
- With assistance from the Patient Access and Experience team, a new telerehabilitation OT referral order was created in the EHR to differentiate telerehabilitation referrals from traditional ambulatory referrals.
- The new telerehabilitation referral order included embedded system-wide phrases to assist providers in screening appropriate patients for the program.
- Referrals were then designated to a newly designed telerehabilitation OT-specific work queue to allow administrative staff to perform necessary program screening and digital literacy training prior to scheduling with the OT practitioner.

Figure 2 (Below, Right): EHR Screenshot of Administrative Patient Screening and Digital Literacy Training Tools

- We designed a phone screen process to confirm patient eligibility for telerehabilitation and identify technology training needs for successful participation.
- Discreet values and branching logic were built in to include hard stops for administrative staff if the patient met telerehabilitation exclusion criteria.
- For patients with additional technology training needs, a training checklist was embedded into the workflow.
- Importantly, safety information (e.g., physical address, emergency contact information) and technology information (i.e., type of device using) communicated directly with clinician-facing Flowsheets for easy access during clinical sessions.

Digital Literacy	
Technology Devices Owned	
Video Call Capabilities	
Location to be Utilized for Telerehab Sessions	
Experience with Video Calls	
Experience with Doxy.me Appointments	
Preferred Doxy.me Invitation Type	
Device to be Used for Doxy.me Visits	
Caregiver Needed for Session?	
Reason Caregiver is Needed for Session	
Patient's Highest Level of Education Completed	
Doxy.me Training Information	
Date of Scheduled Doxy.me Training	
Time of Scheduled Doxy.me Training	
Name of Staff to Complete Doxy.me Training	
Comments for Team	
Doxy.me Training Checklist	
Received invitation by preferred method (email, text, etc)	
Able to check in and connect to the waiting room	
Turn microphone on and off	
Turn video on and off	
Access call settings button to adjust camera, microphone, and speaker settings	
Toggle video to mirrored view	
Set up camera to see various angles of therapy environment (i.e. table, full trunk ...	
All Doxy.me questions answered	

Results
Aim 3: OT Documentation Processes

Outpatient Neurologic OT Evaluation	Stroke Telerehabilitation OT Evaluation
Clinical Assessment	
Prior & Current level of Function	Prior & Current level of Function
Occupational History	Occupational History
Cognitive Status	Cognitive Status
Pain Assessment	Pain Assessment
Modified Ashworth Scale (MAS)	Muscle Tone Screening: Self-Report and observation
Balance	Postural assessment and self-reported balance impairments
Sensation	Sensation screening
Range of Motion	Range of Motion
Strength Assessment (Manual Muscle Testing)	
Gross Motor Assessment	Gross Motor Assessment
Fine Motor Assessment	Fine Motor Assessment
Vision Assessment	Functional Vision Screening
Standardized Assessments	
Grip Strength	Brief Interview for Mental Status (BIMS)
Pinch Strength	Tele-Fugl-Meyer Upper Extremity Assessment
9-Hole Peg	Stroke Impact Scale (SIS) Subscales
Patient Specific Functional Scale (PSFS)	Patient Specific Functional Scale (PSFS)
QuickDASH	Rating of Everyday Arm-Use in the Community and Home (REACH) Scale

Figure 3 (Above): Comparison of Ambulatory vs. Telerehabilitation OT Evaluation: In consultation with clinical OT practitioners, project lead OTs reviewed existing ambulatory neurologic evaluation practices to determine which assessments were most appropriate for telerehabilitation. OT assessments requiring in-person evaluation (highlighted red) were removed, and assessments capturing patients' in-home skills (e.g., PSFS, REACH) were included in the telerehabilitation documentation system.

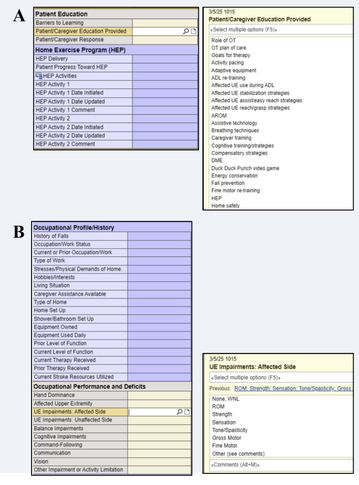

Figure 4 (Left): EHR Screenshots of OT documentation flowsheets.

OT clinical documentation was built into flowsheets with discrete selections to streamline documentation. Depicted left are examples from the OT evaluation flowsheet for (A) patient/caregiver education and (B) potential list of post-stroke upper extremity impairments.

Results
Aim 3: EHR Integration

- Over 2.5 years, our interdisciplinary team created telerehabilitation-specific processes that were fully integrated into the EHR system.
- Focus areas included telerehabilitation OT referrals, administrative and scheduling workflows, patient screenings, digital literacy tools, and clinical OT documentation procedures.

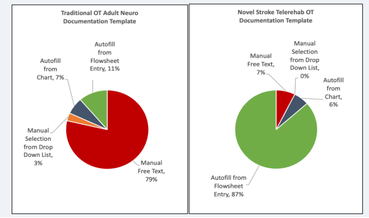

Figure 5 (Left): Comparison of the distribution of documentation effort pre- and post-telerehabilitation EHR build: free-text entry vs. discreet flowsheet selection.

Clinical documentation was built into discrete flowsheet selections, reducing manual free-text documentation from 82% to 7%.

Discussion

- This project successfully addressed a primary barrier to clinical implementation of stroke telerehabilitation OT by reducing the administrative and documentation burdens of delivering virtual services.
- Organizations will need to carefully consider who will manage the additional patient screening and digital literacy training processes that occur prior to telerehabilitation OT scheduling and evaluation.
- The success of this project illustrates the importance of interdisciplinary collaboration in addressing the multidimensional complexities of clinical implementation. Shared decision making by end-users is crucial for the development of enhanced systems (Melles et al., 2021).
- OT practitioners, with holistic clinical practice knowledge and an understanding of how patients navigate OT services, possess unique abilities to drive quality improvement.
- We anticipate that these new, publicly-available workflows and documentation tools will greatly reduce administrative burden by streamlining telerehabilitation patient management.
- These tools can be adapted to other telerehabilitation practice areas.

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