

ACADEMY OF SPINAL CORD INJURY PROFESSIONALS

New clinical process for increasing utilization of robotic exoskeletons for rehabilitation and functional mobility.

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Background

Clinicians working on a robotic exoskeleton CSP study at James A. Haley Veterans' Hospital (JAHVH) in Tampa, Florida identified several gaps in the utilization of robotics in clinical practice. These gaps were identified through observation and the analysis of a brief survey of local clinicians in 2019. Time burden on therapists was identified as the largest barrier.

The original system for implementing robotics into rehabilitation was diagnosis based. Veterans were referred to a physical therapy clinic based on the nature of their diagnosis and offered robotic exoskeleton interventions based on the time and expertise of the therapists in those clinics.

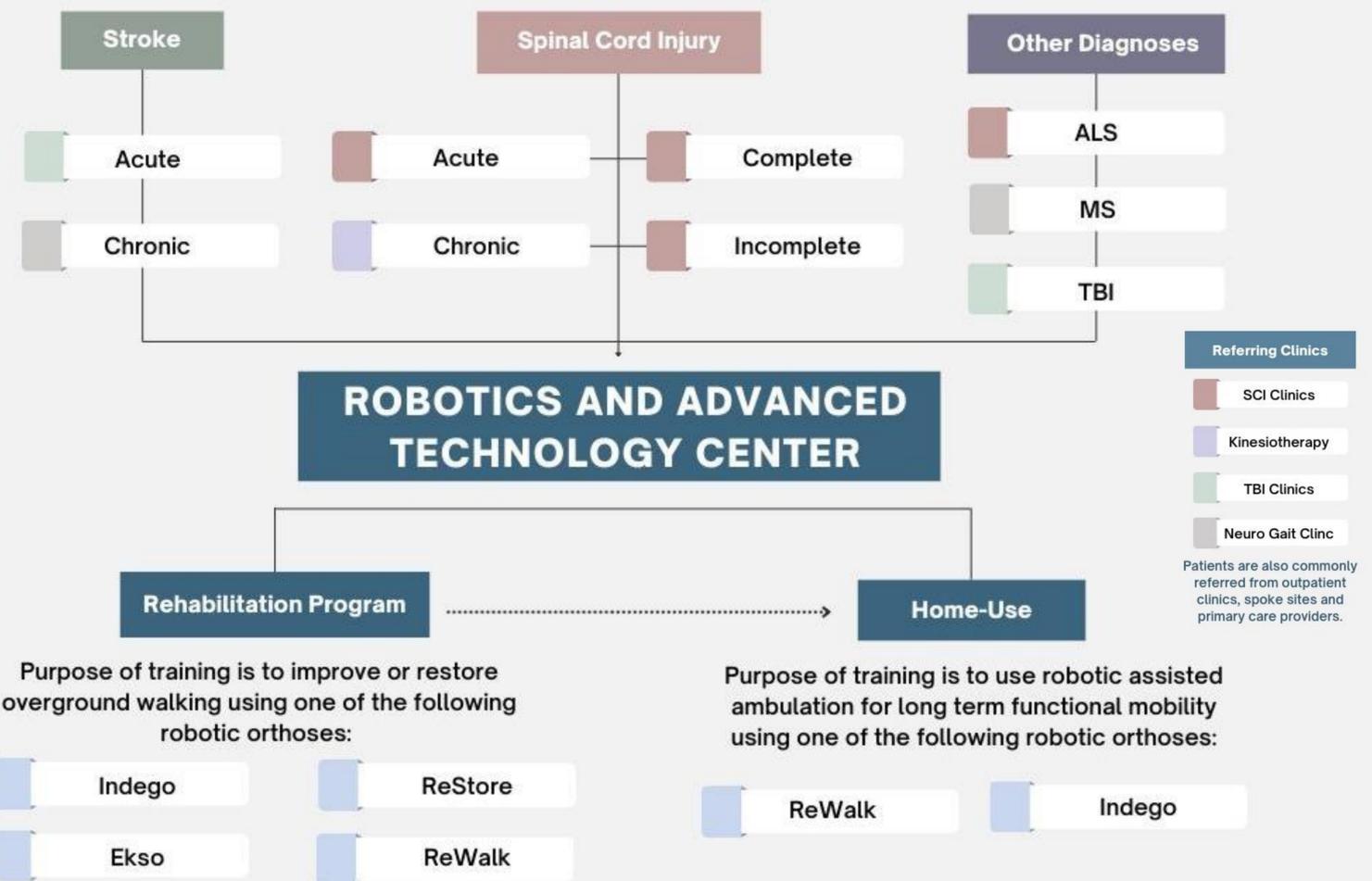
Barriers within the original model included: time for training Veterans (requiring 2 therapists for several hours a week), sizing and managing equipment, maintaining expertise, and confidence in using multiple robotic devices.

Proposal Process

2019 (January) – Original model was presented to the Paralyzed Veterans of America (PVA) leadership team at their annual site visit.
 2019 (September)– Survey data was collected and analyzed to determine specific barriers to exoskeleton utilization.
 2020 (January) – Revised proposal and survey data presented to PVA leadership at their annual site visit.
 2021 (March) – Proposal, with support of the PVA and championed by the chief of SCI, was presented to the local resource management board.
 2021 (June) – 2 FTE's were approved for the development of the Robotics and Advanced Technology Center.
 2021 (November) – 2 physical therapists were onboarded as the primary staff of the new Robotics and Advanced Technology Center.
 2022 (April) – The Robotics and Advanced Technology Center began seeing patients.

Year One Progress

In 2019, prior to the impacts of the COVID-19 pandemic, it is estimated that the clinicians at JAHVH utilized a robotic exoskeleton in clinical practice for six Veterans outside of ongoing research efforts. Between April 27th, 2022 to August 1, 2022 the clinicians of the Robotics and Advanced Technology Center have received 18 consults from 3 different VA facilities. They have completed 12 in-person evaluations and are actively training 9 Veterans for rehabilitation of gait or long-term exoskeleton use. The Robotics and Advanced Technology Center has introduced one new robotic exoskeleton device through donation that is being used for the rehabilitation of gait for patients with stroke or hemiparetic gait. The clinicians have participated in 52 hours of advanced clinical training for the implementation of the 4 exoskeleton models currently available at JAHVH. In addition, the Robotics and Advanced Technology Center has been able to offer advanced trainings to 4 other physical therapists at no additional cost to the facility.



New Clinical Model

The new clinical model is a specialty-based clinic where the therapists are expertly trained in robotics and advanced rehabilitation technologies. Veterans with any appropriate diagnosis at any phase during rehabilitation are referred to one stand-alone clinic. Veterans who are identified as appropriate for exoskeleton training will complete their individualized therapy through the Robotics and Advanced Technology Center. This allows Veterans to trial multiple devices and progress through various levels of training with clinicians specializing in the use of robotics for rehabilitation and functional mobility. This also alleviates the burden of implementing robotics in the existing clinical settings and allows robotics to serve as an adjunct to other therapies. In addition, the Robotics and Advanced Technology Center works to integrate robotics into other therapy sessions as appropriate and serves as the primary clinic for training Veterans to use robotic exoskeletons in the community.