

PM&R Assistive Technology Programs

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Self-Righting Hydration Cup Holder for Hospital Beds

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AT Newsletter Edited by:
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Individuals with neurologic conditions often have difficulty meeting their hydration needs. This device was invented here at JAHVA SCI to assist individuals with a spinal cord injury (SCI) who have difficulty or inability to self-hydrate due to deficits in upper extremity function. Many patients with neurologic conditions (i.e. SCI, Multiple Sclerosis: MS, Amyotrophic Lateral Sclerosis: ALS, Stroke) often have limitations in function of their upper extremity such as strength, grasp or fine motor dexterity. These limitations affect their ability to reach, to pick up and carry the water pitcher from the bedside table. The Self-Righting Hydration system was invented to provide the patient the ability to drink independently without the need for assistance from caregivers or nursing.

My co-worker and Assistive Technology Specialist here at JAHVA, Ursula Draper, OTR, ATP, suggested 3D printing at Hunter Holmes McGuire VA Medical Center. Together with Ursula, we contacted Brian Burkhardt, the Rehab Engineer in a virtual video conference (VVC) call. I showed Brian my thermoplastic Hydration Cup holder and Brian saw the potential for this to be a great project for 3D printing. I sent my thermoplastic model to Richmond, VA to begin the 3D printing process. There have been four generations of the cup and one change to the loc-line straw holder to accommodate the frequent on-offs of the straw during water changes. Brian re-enforced the straw holder and we have not had the holder bend. The 2nd generation cups were made with 3D Mark Forged Onyx thermo-plastics for the handle, and this addition has been very successful with no instances of breakage. The cup portion was made with polylactic acid (PLA).

The use of loc-line flexible tubing enables the straw to be positioned to allow the patient to self-hydrate while in bed. Thus, it can increase autonomy in hydration, thereby concurrently decreasing caregiver burden while reducing the likelihood of adverse health issues such as urinary infections, dehydration, and hypotension. An additional driving force to create the hydration cup holder was to be able to use the

standard hospital water pitcher to reduce cost in having to order specialty items, ultimately saving money for the hospital. Hydration products can range in price and be hundreds of dollars per unit, which increases cost as more veterans need assistance with accessing hydration. The design is simple with an easy on-off application at the siderail of the bed.

This cup holder has a Self-Righting feature that swivels as the head of the bed is increased, which reduces spills as the bed is adjusted. The patients using the Self-Righting Hydration Cup holder have been pleased with their ability to drink water at will, instead of waiting on someone to assist them.



The Self-Righting Hydration Cup Holder was picked for the FY21 VISN 8 Innovation and Spread grants and the SCI Occupational Therapy (OT) department will be receiving many more hydration cup holders to benefit the veterans on the SCI units.

In 2020, The American Occupational Therapy Association (AOTA) conference's Inventors Showcase, the Self-Righting Hydration Cup Holder was the recipient of the Audience Choice award (cont., page 3).

AT PRODUCT REVIEW: Amazon Echo Show 8

By Kaitlyn Hopson, SLP Graduate Clinician
Supervised by Telina Caudill, CCC-SLP, ATP



Overview

The Amazon Echo Show 8 is a smart speaker that was released in November 2019. It features an 8" HD Screen and stereo sound speakers with a wide range of volume options. The device allows users to have access to Alexa-enabled environmental controls such as lights and smart appliances (some devices may require an additional Zigbee hub), setting timers, reminders and calendar events, make video calls, see news stories, get the weather, read books and recipes aloud with the added feature of visualization of the text, playing music, and much more all with the sound of their voice. The Echo Show 8 is equipped with voice assistant "Alexa", a physical camera shutter, and sunrise alarms. The Echo Show 8 recognizes both natural and synthetic voices and is available for purchase on the general market.

Indications

The Echo Show is appropriate for those who have their natural voice or access to a synthetic voice via a speech-generating device (SGD). Primary populations include ALS, Aphasia, TBI, literacy/language/cognitive deficits and/or severely limited physical abilities.

Contraindications

The Echo Show 8 might not be appropriate for those with impaired vision, significant speech impairment without access to SGD, and users with limited tech experience who may feel uncomfortable with device use.

Criteria for Evaluation of Assistive Technology Device:

Affordability: Available from Amazon for \$79.99. A smaller version (Echo Show 5) is available for \$44.99. There is also a larger version of the Echo Show with a 10.1" display and built-in Zigbee hub. The 3rd generation of the flagship Echo Show has not been released as of December 2020 but will retail for \$249.99. Other retailers include: Target, Home Depot, Best Buy, Staples, etc.

Compatibility: The Echo Show 8 requires home wifi and the Alexa app for setup. The Alexa app is compatible with other Amazon devices (Echo Dot, Echo, Echo Plus, Echo Show, Echo Show 5), Amazon FireStick 3.1 or higher, Android devices 6.0 or later, iOS devices 11.0 or later, and via web browsers.

Consumer Repairability: Issues with the device may be resolved by visiting the Alexa app, resetting the device, or by calling the Alexa technical support phone number: +1-844-601-7233. Customers can visit the following website for step-by-step instructions. <https://www.amazon.com/gp/help/customer/display.html?nodeId=202138870>

Dependability: The device has been reliable and dependable. No issues, glitches, or crashing have been experienced. However, eventual glitches have been experienced in earlier models. Amazon does release new generations of Echo products frequently – it would be reasonable to expect a new version released annually.

Durability: Some users have noticed a downgrade in voice recognition in older models. There is currently not enough data on the newer Echo Show 8 model. If the device follows the path of the older models it is presumed it will downgrade.

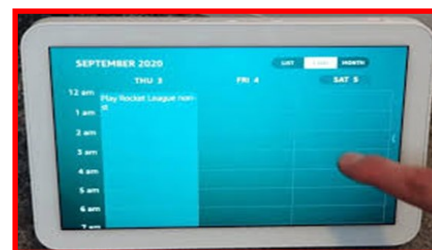
Ease of Assembly: The Echo Show comes new in box with all necessary accessories. It comes with Wi-Fi capabilities. Assembly should be relatively easy. If additional products for environmental controls are added (lights), ease of assembly decreases and novice tech users

might require assistance.

Ease of Maintenance: Normal device maintenance including software updates as needed.

Effectiveness: The device is effective in increasing user's independence by giving them the freedom to access news, weather, calendar appointments, reminders and much more through their voice.

Flexibility: The Echo Show 8 is Bluetooth compatible with other Amazon devices to include the smartphone app. The Echo Show 8 offers a female voice by the name of Alexa. Users can change the name of the device to a more applicable name as needed (e.g. Echo, computer). Other languages available for free include French, German, Hindi, Italian, Japanese, Portuguese, and Spanish. Speaking rate can be easily adjusted by simply saying "Alexa, speak slower" or "Alexa, speak



faster".

Learnability: With multiple support videos, forums, and helpful FAQ on the internet, the Echo Show 8 should be easy to learn for any novice tech user. For added modalities (environmental controls) additional training is warranted.

Operability: Easy to use and positive user feedback thus far. Multiple FAQ pages are available for users to access for increased user satisfaction.

Personal Acceptability: Given the ease of use of the device, users might be more prepared to use the all-in-one Echo Show versus multiple other modalities for (cont., page 3),

AT PRODUCT REVIEW: Amazon Echo Show 8, cont.

functions such as timers, calendar events, emergency phone calls, and much more. Some users may have concerns about privacy and data collection. If users have these concerns, training can be provided on the steps needed to delete usage and voice history – by default, Amazon saves and stores user voice recordings when using the device.

Physical Comfort: There should be no physical discomfort when using this device. There is an adjustable stand available as a \$25 add-on which may provide improved options for viewing angles.

Portability: The Echo Show 8 requires an electrical plug-in making portability difficult. Even though the device is not physically portable, the new improved speakers make it possible to hear a person's voice from across the room increasing the accessibility of the device. Upper extremity (UE) function is not required as the device can be accessed via voice.

Securability: Not applicable for this device. The device is located inside the home which can be secured via lock and key.

Supplier Repairability: Amazon's website provides technical support via FAQs and videos.

1	2	3	4	5
Not satis-	Not very satis-	More or less satis-	Quite Satis-	Very Satis-
	Category		Score	
	Affordability		4	
	Compatibility		5	
	Consumer Repairability		4	
	Dependability		4	
	Durability		4	
	Ease of Assembly		5	
	Ease of Maintenance		4	
	Effectiveness		5	
	Flexibility		5	
	Learnability		5	
	Operability		5	
	Personal acceptability		5	
	Physical Comfort		5	
	Physical Security		5	
	Portability		5	
	Securability		N/A	
	Supplier Repairability		4	
	Average		4.6	

Self-Righting Hydration Cup Holder

The Self-Righting Hydration Cup Holder was presented via poster in VISN 8X: Virtually Out of This World.

There is now a 3D printer for the PMRS department at the James A Haley Veteran's Hospital. The occupational therapy practitioners involved are learning how the machine works and have recently printed one of the hydration cups here at the hospital in recent weeks. This learning has been a work in progress for the clinicians involved. The Tampa VA would benefit from having a Rehab Engineer to assist the OT team with all the great creations that come out of our OT department.

A special Thank You to McGuire VA Medical Center, Melissa Oliver and Brian Burkhardt for the assistance given for the hydration cup and the many more adaptive devices that have been 3D printed for the benefit of our veterans.

Site Update...Tampa

OUTREACH

- ◆ Tampa AT and Physical Therapy collaborated with the West Palm Beach VA Speech Pathology department to complete a comprehensive AT evaluation following inter-facility consultation.

March 2021 increased by 1103% compared to March 2020. AT has 530 VVC encounters to date for FY2021.



PRESENTATIONS

- ◆ **Telina Caudill** and **Brittany Reed** (Richmond VA AT Team) presented during the Telerehabilitation Enterprise Wide Initiative (TREWI) Grand Rounds on 3/5/21. The title of the presentation was Tele-AT: A Shift in Paradigm During COVID-19.

CURRENT PROJECTS AND PERFORMANCE IMPROVEMENT

- ◆ AT Mentoring with New Orleans and Biloxi
- ◆ Preparation for CARF 2023
- ◆ Shared calendar with SCI admissions coordinator to better prepare and serve known AT clients during planned admissions
- ◆ Sharing of AT evaluation

processes and forms with local device reps for improved collaborative assessments

- ◆ Telina Caudill is authoring a chapter on AAC Implementation for Adults with Acquired Communication Disorders

TELEHEALTH

- ◆ CVT-Home visits for



Site Update...Richmond



◆ **Telina Caudill** (Tampa VA AT team) and **Brittany Reed** presented during the Telerehabilitation Enterprise Wide Initiative (TREWI) Grand Rounds on 3/5/21. The title of the presentation was Tele-AT: A Shift in Paradigm During COVID-19.

◆ Polytruma Nursing Skills Days via TEAMS.

- ◆ Brian Burkhardt and Melissa Oliver presented to VCU OT students on clinical use of 3D printing.

encounters.

CURRENT PROJECTS AND PERFORMANCE IMPROVEMENT

- ◆ Preparation for CARF 2021.
- ◆ Quality Life+ Project with engineering students at California Polytechnic State University.

OUTREACH

- ◆ AT was added as a member of the VA Neurology Advisory Committee.
- ◆ Provided mentorship to several VAs about setting up 3D Printing programs.

PRESENTATIONS

TELEHEALTH

- ◆ VVC increased from FY20 in Quarter 2 by 208%

MEET WARE



WARE's robotics lab including wheelchairs with fitted robotic arms

Greetings from Pittsburgh, where the Human Engineering Research Laboratories (HERL) resides on the fourth floor of the Bakery Square office building, located in a technology complex and shopping hub on Pittsburgh's East End. Founded by Rory A. Cooper, PhD in 1994, HERL has been at the forefront of assistive technology mobility research for over 25 years. Our mission is to continuously improve the mobility and function of

and Assistive Robotic Engineering (WARE). WARE is funded by the VA Pittsburgh Healthcare System, whereas HERL has many funders, not least the University of Pittsburgh, but also the National Science Foundation, the Paralyzed Veterans of America, and the National Institutes of Health, to name just three. Both WARE and HERL operate as one laboratory, but the benefits from having access to both

chair that climbs curbs and keeps a level seat when traversing cross-slopes; a wheelchair powered solely by compressed air; a system to remind manual wheelchair users to change positions for the prevention of pressure ulcers; a robotic strong arm system, attached to a power wheelchair, that aids in transfers; and much more. Discover more about HERL/WARE at <https://www.herl.pitt.edu/>.



WARE's machine shop

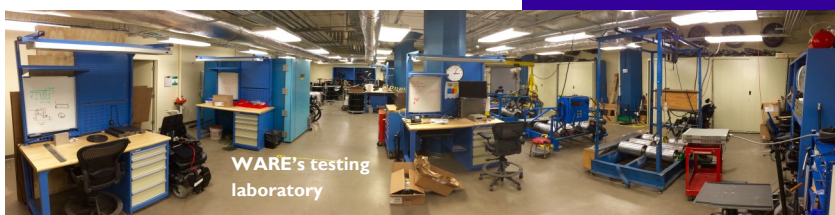
Veterans and people with disabilities through advanced engineering in clinical research and medical rehabilitation; our vision is to create a world where Veterans and all people with disabilities have unencumbered mobility and function so that they can fully participate in and contribute to society. A Veteran with disabilities himself, Dr. Cooper is one of the best-known Rehabilitation Engineers and inventors in the country today, and all HERL research operates on the philosophy of participatory design – in other words, people who are most likely to use new technologies contribute to every step of the design, development, and testing process of these technologies.

Within HERL resides the VA Center for Wheelchairs

and Pitt resources are crucial to our success.

HERL/WARE's space contains many working laboratories – chief among them a large clinical lab, a robotics lab, a testing lab, and a large prototyping lab/machine shop that is one of the best in the entire VA. The immense capabilities of the prototyping lab led VA Pittsburgh officials to ask WARE to pivot to PPE manufacturing in mid-2020 when the supply chain was stuck due to the COVID pandemic.

Our current research includes (but is not limited to) creating a wheel-



WARE's testing laboratory



The air-powered Pneuchair wheelchair entering a wave pool (2017)



The curb-climbing, seat-leveling MEBot robotic wheelchair competing in the Cybathlon for robotic technology (2016)

HERL/WARE is also constantly recruiting for our research registry. Due to our use of participatory design, it is vital that we have a strong user base from which we can select research participants to contribute in every aspect of our research. Sign up at <https://sbs.ucs.pitt.edu/herl/>.

Contact: Michael Lain, michael.lain@pitt.edu
412-219-8698

AT PRODUCT REVIEW: LUCI

By: Jody Bastien, OT/ATP, Kaila Grenier, Rehab Engineer, Frantz Joseph, COTA/ATP and David Parson, OT/ATP

Overview

LUCI is a hardware and software package for power wheelchair users that promotes further independence with driving through collision avoidance, drop-off protection, and tip protection. The LUCI system is comprised of a combination of cameras, sensors, and radars to assist users in navigating their environment. Furthermore, LUCI enables users to connect directly with their healthcare team and smart devices in their home through the MyLUCI App.

LUCI was launched in June of 2020 for use on Permobil M3, M5, and F3 model power wheelchairs with standard or alternative drive mechanisms. Currently, the LUCI system is not available for any other power wheelchair models. LUCI can be a very useful tool for pediatrics, individuals with visual impairments such as central and peripheral field cuts, and those with mild cognitive limitations in motor planning, processing, and safety.

LUCI is a valuable tool to increase users' independence in navigating an inaccessible world. Despite endorsed limitations of the LUCI system, it is making wheelchairs better, safer, and smarter!



Indications:

For individuals who would benefit from additional assistance while driving a power wheelchair. Ideal for the following patient populations:

Pediatrics with learning and developmental disabilities

- ◆ Visual impairments or individuals with central or peripheral field cuts
- ◆ Individuals who may not be otherwise clinically appropriate for power mobility d/t motor planning deficits, cognitive ability, delayed processing, processing speed deficits, and poor safety awareness
- ◆ Limitations in cervical range of motion to use peripheral field of vision for environmental scanning

Contraindications:

For individuals with severe cognitive limitations, extremely poor safety awareness, low frustration tolerance, and minimal caregiver support.

Affordability:

LUCI costs \$8,445.00 and can be ordered through a Permobil Representative within the VA and a designated supplier in the private sector. On average, the cost of LUCI is comparable to other high tech power wheelchair components, like the Ability Drive system, but is not extremely affordable. It is hard to compare the cost of this device to others because the LUCI system offers significantly more features to "same-lines" technology on the market currently (Braze Mobility – only provided 180 degrees of "vision" in the rear of the device and very modular), but it is more expensive.

Compatibility:

LUCI is only currently compatible with Permobil M3, M5 and F3-series power wheelchairs.

Consumer Repairability:

The user can send data to the company through the LUCI dashboard or contact the LUCI Customer Experience Team. LUCI also has a form for online submission for any related questions.

Dependability:

As the device is new to the market, there is not a lot of data about the LUCI system, but LUCI has consistently responded to the same scenarios within the clinical setting. Our clinical team has noted challenges with the front scout responding to a high gloss floor.

Durability:

LUCI is IP54 compliant for water and dust ingress and will be able to survive any conditions that the power wheelchair is able to survive. The front scout mounted on the footplate is slightly outside of the footprint of the chair, so it may be exposed to many forces of the user, including transfers; however, it has surpassed impact and drop testing. The rest of the LUCI frame seems to be within the footprint of the base of the chair limiting it to similar exposure as the base of the power wheelchair.

Ease of Assembly:

It is not recommended that the consumer or caregiver assemble LUCI independently. LUCI should be installed by a trained manufacturer or supplier and the prescribing wheelchair therapist. Installation could be performed by the prescribing clinician with training from LUCI and practice. The LUCI system comes with an abundance of supporting documentation, which helps ease the assembly process with good visualizations and instructions.

Ease of Maintenance:

According to the LUCI owner's (cont. page 7)

AT PRODUCT REVIEW: LUCI, cont.

manual, the device can be wiped down with a damp cloth. LUCI is protected from water and dust and should require minimal maintenance once operable. LUCI additionally recommends the user to periodically wipe down the surface of the cameras and sensors to ensure there is nothing blocking their ability to function properly. Furthermore, it is stated that LUCI will alert the user if a camera needs significant cleaning. LUCI is also equipped with a feature that allows the user to send data to the company directly through the LUCI Dashboard, when connected to WiFi, if they are having any difficulties.

Effectiveness:

LUCI can allow someone to drive independently in their residential and community environments when the user may have otherwise needed assistance or supervision. LUCI is proficient with identifying obvious obstacles. LUCI will allow you to get close to walls through the side sensors but will not recognize a shelf on the wall because of its height in relation to the base where the sensors are located. This is also true with tabletops and overhangs, but the company provides useful tools and tricks to handle these situations using LUCI. As a user would go to make a turn, the sensor will not identify points of contact of protruding components of the power wheelchair such as back canes, armrests, or an attendant control that are elevated from the sensors.

Adjustments can be made to the LUCI programming to help maximize benefits and usefulness of LUCI for each user and can be done remotely over video with the clinician. When LUCI is preventing a user from operating the power wheelchair, the user can override LUCI for 20 seconds, but it would be beneficial to more easily access a visual representation of what sensor is causing the drive lockout rather than having to connect via smartphone and IP of LUCI. It can be fairly cumbersome for the user to perform that task, especially during that situation in real time.

When a LUCI sensor is activated it will impact the power wheelchair drivability as it slows the power wheelchair down and can cause jerky movements, especially if the user is driving at higher speeds. This

would be particularly prominent in "bump" mode, letting the user know it has bump something. Overall, LUCI provides many benefits to the user to enhance their functional capability of using a power wheelchair independently; however, there are clear limitations of the system and the clinician and user should be aware of these.

Flexibility:

LUCI is based off of a compatible power wheelchair prescription, and thus, the order form is limited to simply match the specifications of the user's power wheelchair.

Learnability:

The basic functionality of the LUCI system would be considered easy to learn because the user only has control over the LUCI dashboard (i.e. one button) with an instruction sheet attached. Users will be required to complete problem solving in real world environments when the LUCI system is preventing them from maneuvering the power wheelchair as desired, which can be slightly more difficult for a user to learn and master. Specialized training would be required for additional LUCI functionality and compatibility, including the MyLUCI App, Alexa integration, the visualizer on the user's phone, and programming parameters of the LUCI system. These additional features, however, are not critical for LUCI to function, so the user and the clinician can decide how much is appropriate for the user to learn. The clinician learnability will require further education, training, and knowledge of the LUCI system compared to the end user, in order to master all of the components and functions available with LUCI.

Operability:

The LUCI device and main functionality is easy to operate as there is one button for the user to be aware of and control. LUCI Dashboard can be activated with alternative switch access methods as well, and LUCI is compatible with a variety of drive mechanisms from standard joysticks to a range of alternative drive controls. When the power wheelchair turns on, LUCI takes approximately 5 seconds to load, whether LUCI is powering on or not,

before the user can begin driving their power wheelchair. Because the LUCI Dashboard button controls multiple functions including override, setup, and data transfer, the user just needs to be aware if they are activating the button appropriately. If not, the chair could get confused which may require a power cycle or switch of the power wheelchair breaker.

Personal Acceptability:

Ultimately, the acceptance of LUCI is based on the personal preference and beliefs of the user. LUCI has a very sleek and integrated design. LUCI is integrated into the base of the power wheelchair, and comments have been made that individuals didn't recognize that the LUCI system was installed on the power wheelchair.

Physical Comfort:

The LUCI device is not in physical contact with the user beyond the dashboard button or accessible switch.

Portability:

LUCI is mounted to the user's power wheelchair, thus portable wherever the user takes their PWC.

Securability:

The LUCI device is securely fastened to the power wheelchair base, thus significantly reducing chance of theft.

Supplier Repairability:

Repairs would need to be completed by a specifically trained LUCI supplier, trained wheelchair technician or a Permobil Rep within the VA system. If the LUCI technical support team cannot guide the clinician or supplier through repair or possible solutions, a replacement unit can be ordered under the 3-year manufacturer's warranty, (cont. page 9).

Veteran Success Story...Ed

By: Telina Caudill, MS, CCC_SLP, ATP



Ed is an 80-year-old Navy Veteran originally from Cape Cod and now a Floridian for over 20 years. He lives with his best four-legged friend, Vinny, a Boston Terrier. He is a father to a son and a daughter who live up north. He began noticing changes in his speech following a dental extraction in September 2019 and symptoms gradually worsened after that. In June 2020, he was referred to Neurology and in August that year he was diagnosed with bulbar onset ALS. By that time, he was completely anarthric, unable to speak. A consult to Assistive Technology and Physical Therapy was initiated. We requested a tele-iPad for him to communicate with the ALS team and other providers as he did not have a reliable means to connect for VVC during the COVID-19 pandemic. Prior to receiving a speech-generating device, he communicated with the team on VVC by typing into the Chat window.

What AT did you receive:

Tobii-Dynavox EM-12 + USB keyboard, Honor Alert, Revo 2.0 4-wheel scooter with rear basket, vehicle lift for scooter transport, vertical platform lift with battery back-up, Permobil F3 power wheelchair.

What has been your experience with the Assistive Technology Program at the James A Haley Veterans' Hospital?

It has opened up a whole new world. I can't say enough about it. The best part is I get to talk to you.

With whom did you work?

AT: Telina Caudill and Ursula Draper and PT: Rebekah Crall

How has your augmentative-alternative communication (AAC) device made an impact on your life?

I can talk again. It's hard when you can't talk, like to say things to people both good and bad. Like, "I love you" or "You're standing on my foot." You keep saying things in your head that you would like to say. I can talk on the phone again. I've dealt with insurance issues and credit card fraud over the phone now. Before I had to go and find people to talk for me. But they wouldn't say what you wanted! I talked to the ALS team this week. I talk to my children. My kids are funny. They are great at one-liners. It's easier to text when you run out of things to say. Like, when you are texting and have nothing else to say, you just do nothing but if you are on the phone, what do you do? But being able to speak for myself is great. You don't know how many times I wanted to say something and just couldn't.

How has your power mobility device made an impact on your life?

The walk into Walmart from the parking lot was like the death march. I would be looking for a shopping cart to hold onto. When I came to see you in the hospital, I had to walk down the hall hanging onto the wall. Not now. The lift they put on my truck lets me go to Walmart. I can walk Vinny now. It's taking awhile to train him; he wants to ride instead but we do good.



How has your emergency call system (ECS) made an impact on your life?

I plan for everything. I don't fall that much yet, but I know I will. I feel better knowing I have it.

How has getting back into your My HealtheVet account changed things for you?

Thanks to you, I've got it down now. I went on yesterday and was able to see two appointments that were scheduled at the same time, so I can contact somebody to fix that. And I check my meds to see when they are going to run out. That is wonderful.



Would you say your quality of life has improved with these services?

Yes, 100% improved. I am getting the most out of my life right now.

Is there anything else that you would like to share that has helped you?

I owe a lot of credit to Holly, my dietitian. I can't swallow and was losing a lot of weight on a liquid diet and she came up with a formula that I am putting on weight with and feel much better. You guys are great. Also, everyone with ALS should get a small hot tub in my opinion. I get up at 2am with leg pains and get in the hot tub; pain is gone in 10 minutes.

Assistive Tech created in OT Hands Clinic Site Update...Albuquerque... Jessica Hafner, OTS



Holding a phone can be cumbersome with orthopedic or neurologic deficits, and commercially available devices are not always practical. Adaptive one-handed cell phone holders, custom fitted to specific phones and patients, are a quick and easy solution if you have common splinting materials and equipment available. In this case, one veteran needed a new way to hold his phone horizontally with one hand without straining his fingers. The custom adaptive phone holder allowed him to do that, which increased his independence with phone-based IADLs and leisure activities. Another veteran suffers neurological issues in one upper extremity which have caused him to drop his phone so many times that it became useless. He received the vertical adaptive phone holder, along with the phone it was fitted to, as part of the local HUDVASH program, increasing his independence in IADLs and leisure activities, too.

These adaptive cell phone holders were designed, and custom fitted to the veterans' specific phones, so as to ensure the phone cannot fall out of the holder. Both were made from thermoplastics according to the patterns depicted. Black materials and strapping allowed for a less-medical look (applied after last photo was taken), improving patient acceptance and use. The handle of each was fitted to the veterans' hands and included common hook and loop strapping to allow for best fit and the ability to strap it to other objects when needed. The design also works as a phone stand.



AT PRODUCT REVIEW: LUCI, cont.

1	2	3	4	5
Not satisfied at all	Not very satisfied	More or less satisfied	Quite Satisfied	Very Satisfied
	Category		Score	
	Affordability		3	
	Compatibility		3	
	Consumer Repairability		1	
	Dependability		5	
	Durability		3	
	Ease of Assembly		4	
	Ease of Maintenance		5	
	Effectiveness		4	
	Flexibility		3	
	Learnability		3	
	Operability		4	
	Personal acceptability		5	
	Physical Comfort		5	
	Physical Security		5	
	Portability		5	
	Securability		5	
	Supplier Repairability		3	
	Average		3.9	



Assistive Technology Program Mission

To enhance the ability of Veterans and Active Duty members with disabilities to fulfill life goals through the coordination and provision of appropriate interdisciplinary assistive technology services.

To serve as an expert resource to support the application of assistive technology within the VA health care system

Assistive Technology Education Resources

Recent Telehealth Publications & Articles:

- ◆ Ott, K.K., Schein, R.M., Straatmann, J., Schmeler, M.R. & Dicianno, B.E. (2021). Development of a Home-Based Telerehabilitation Service Delivery Protocol for Wheelchair Seating and Mobility Within the Veterans Health Administration, Military Medicine, usab091, Advance online publication. <https://doi.org/10.1093/milmed/usab091>
- ◆ Bell, M., Schein, R.M., Straatmann, J., Dicianno, B.E. & Schmeler, M.R. (2020). Functional Mobility Outcomes in Telehealth and In-Person Assessments for Wheeled Mobility Devices. International Journal of Telerehabilitation, 12(2), 27-34. DOI: <https://doi.org/10.5195/ijt.2020.6335>
- ◆ Ott, K.K., Schein, R.M., Saptano, A., Dicianno, B.E. & Schmeler, M.R. (2020). Veteran and Provider Satisfaction with a Home-Based Telerehabilitation Assessment for Wheelchair Seating and Mobility. International Journal of Telerehabilitation, 12(2), 3-12. DOI: <https://doi.org/10.5195/ijt.2020.6341>
- ◆ Clinician's Guide to Use of Telehealth for CRT Service Provision - <https://cliniciantaskforce.us/>
- ◆ Telehealth for Complex Rehab Technology: Is It Effective? - <https://www.vgm.com/communities/us-rehab/telehealth-for-complex-rehab-technology-is-it-effective/>

VA Adaptive Sports Online Training Program

- ◆ Essentials of Volunteer Training for Adaptive Sports & Recreation (EVoTAS) - <https://propel.shrs.pitt.edu/courses/evotas>

Disability and Rehabilitation Research Projects (DRRP) Program: Research on Healthcare Policy and Disability- Complex Rehab Technology Policy

- ◆ <https://www.crtpolicy.pitt.edu/>

International Seating Symposium, October 28 – 30, 2021 (Hybrid Offering with in-person and virtual options)

- ◆ <https://www.seatingsymposium.us/>

